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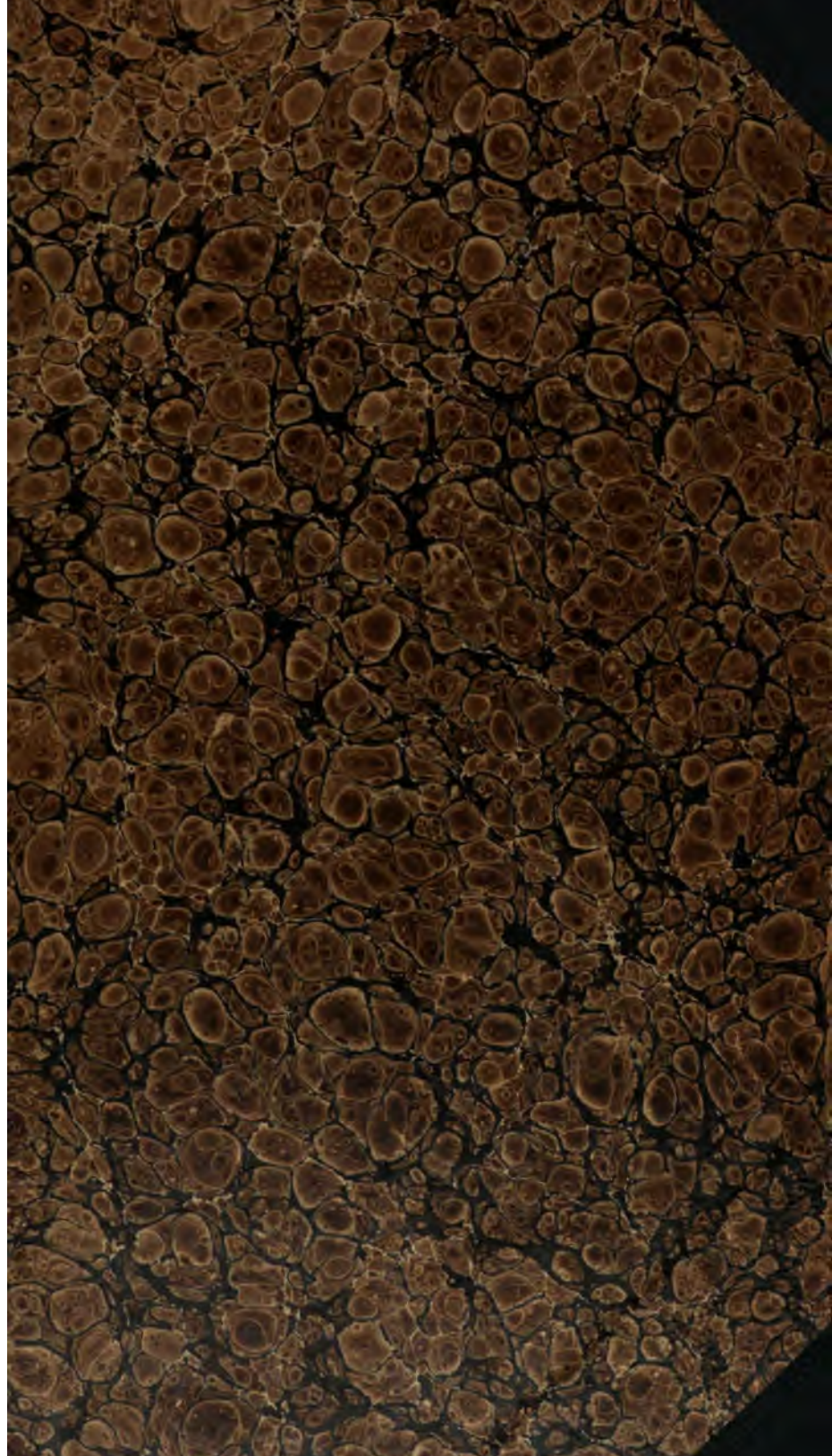
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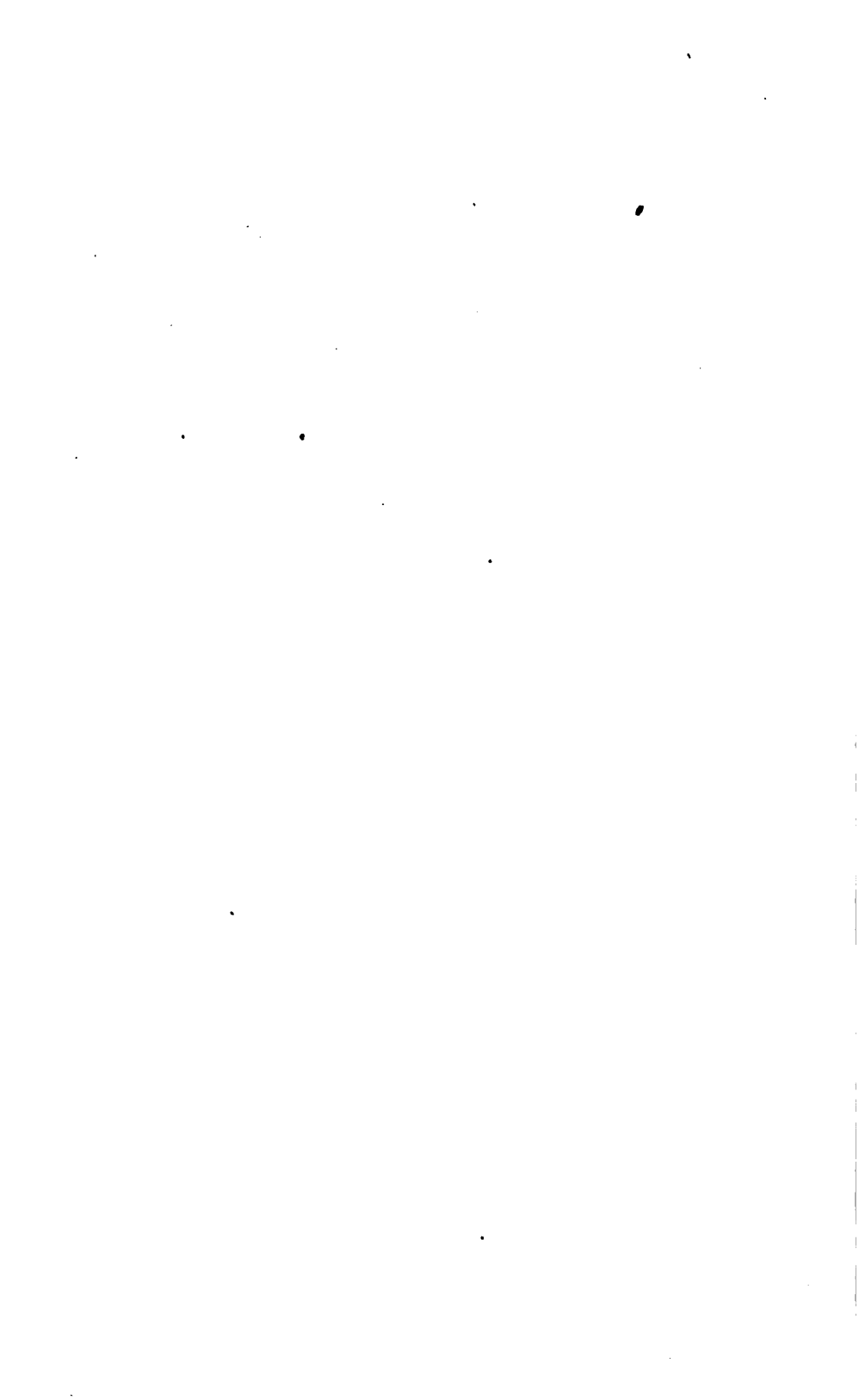


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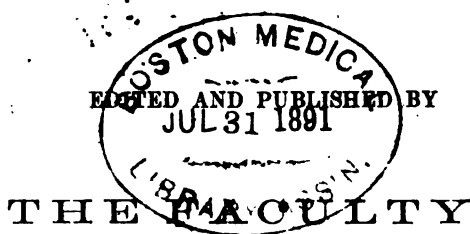






THE  
DENTAL TIMES.

A  
QUARTERLY JOURNAL  
OF  
DENTAL SCIENCE.



OF THE  
*Pennsylvania College of Dental Surgery.*

VOL. I.

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# DENTAL TIMES.

VOL. I.

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No. 1.

## PROSPECTUS.

The introduction of the DENTAL TIMES to the notice of the professional public, commences with this number, and we propose briefly to present a general outline of its design, object, and what it is hoped it may accomplish.

The design of the publishers is to collect and diffuse such information as may be of daily use to the Dentist, either in the office, laboratory, or study; as that instruction is ever the most valuable that can be used in daily practice, its benefits accruing to both patient and practitioner. Theory, when founded on inferences drawn from established principles, in a dental journal, should not be lost sight of; yet it is our aim to make the DENTAL TIMES as *practical* a magazine as possible; an assistant to the working as well as the thinking dentist.

The editorial corps is composed of gentlemen who are engaged in teaching special branches of their profession, and they propose to contribute articles in their several departments. The publishers of the journal solicit and hope to receive contributions from the profession, or those interested in its advancement, their columns being ever open to the student, the worker, or the teacher; having but one aim, viz.: the promotion of Dental Education and Literature, they confidently hope for the co-operation and patronage of the Dental public.

The DENTAL TIMES will be issued on the 1st day of July, October, January and April, and, as its name indicates, will "*keep pace with the times*," and thereby assist its readers in so doing.

## MATTER AND ITS PROPERTIES.

BY T. L. BUCKINGHAM, D. D. S.

Before we consider the properties of matter, it will be necessary to explain what we understand by the term matter. Webster defines matter to be "the substance of which all bodies are constituted," and this is probably as clear an explanation as can be given; anything that has magnitude, occupying a certain space and preventing all other substance from occupying that space, is called matter.

Two theories have prevailed in regard to the ultimate constitution of matter—one was that matter could be divided infinitely, and we would be compelled to believe this to be so from one mode of reasoning; for we cannot conceive of any substance being so small but that it could be divided into two, if we had instruments sufficiently delicate, or at least it could be theoretically divided, and the two parts into four, and so on without limit. This can be demonstrated by a very simple problem. If, on a horizontal line, a perpendicular be raised, and a segment of a circle be drawn from one line to the other, a line starting at the point where the first two lines meet, running out at an angle of forty-five, would divide the segment of a circle into two equal parts; another line at an angle of twenty-two and a half divides one of the parts into two, this process might be continued without limit; for if we imagine one of the original lines to be extended to an indefinite length, and the smallest space between it and another line starting from the same point, then the two lines cannot be parallel, and will divide any line crossing them into larger or smaller parts, as it may be nearer or farther from the starting point.

The above is not now held to be the correct hypothesis. At the present time the theory of atoms or molecules is the one that prevails. That is, that matter was created in certain definite fixed sizes and shapes, although these particles are exceedingly small, and so minute as to admit of no division, still they have a definite size and shape.

Sir Isaac Newton writes, in regard to the atomic theory:

"It seems to me that God, in the beginning, formed matter in a solid mass of hard impenetrable particles, and that these particles being solids, are incomparably harder than any porous bodies compounded of them—even so very hard as never to wear or break in pieces. No ordinary power being able to divide what God made one in the first creation."

Chemistry has also shown that it is constituted of particles possessing definite and limited magnitudes. These particles, (or atoms as they are called,) are never changed in any way whatever, but remain the same in size, figure and weight through all their various combinations.

I might here say something about the size of the atoms, but as they are so exceedingly small, it is difficult to conceive an idea of their magnitude. Gold can be beaten into leaves so thin that it takes 252,000 to make an inch in thickness. Dr. Wollaston drew platina wire to the 30,000 of an inch in diameter, and although it is nearly the heaviest metal, a mile of the wire only weighed a grain.

Professor Silliman, in his Principles of Philosophy, gives some very interesting statements of the "minute divisions in the animal and vegetable kingdoms." He remarks, in reference to the red corpuscles in the blood of man and the musk deer: "In man the diameter of these

corpuscles is the 3,500 of an inch, and in the musk deer only the 12,000 of an inch—therefore, a drop of human blood, such as would remain suspended from the point of a cambric needle, will contain about 3,000,000 of corpuscles, and about 120,000,000 might float in a similar drop drawn from a musk deer.

“But these instances of the divisibility of matter are far surpassed by the minuteness of animalcules, for whose natural history we are indebted chiefly to the researches of the renowned Prussian naturalist, Ehrenberg. He has shown that there are many species of these creatures so small, that millions together would not equal the bulk of a grain of sand, and thousands might swim at once through the eye of a needle. These infinitesimal animals are as well adapted to life as the largest beasts, and their motions display all the phenomena of life, sense and instinct. Their actions are not fortuitous, but are evidently governed by choice, and directed to gratify their appetites and avoid the dangers of their miniature world. The stagnant waters of the earth, (and sometimes the atmosphere,) everywhere are populous with them to an extent beyond the powers of the imagination to conceive their numbers. Their siliceous skeletons are found in a fossil state, forming the entire mass of rocky strata many feet in thickness and hundreds of square miles in extent.

“The polishing-slate near Bilin, in Bohemia, contains in every cubic inch about 41,000 millions of these animals. Since a cubic inch of this slate weighs 220 grains, there must be in a single grain 187 millions of skeletons, and one of them would therefore weigh about the 187 millionths of a grain.

“It is impossible to form a conception of the minute dimensions of these organic structures, and yet each separate organ of every animalcule is a compound of several substances, each in its turn comprising numberless atoms of carbon, oxygen and hydrogen.”

Matter has certain forces or properties. One, which is universal, is the force of gravitation. *“Every particle of matter attracts every other particle in the direct ratio of its mass, and in the inverse ratio of the square of its distance.”*

It is not necessary to enter into any long explanation of this force. It differs from all other forces as it acts upon all matter, and is in proportion to the quantity and the distance. A very limited explanation would require more space than is intended to be given in this paper. I will therefore pass on to another force—adhesion. This force only acts at an immeasurably small distance, and between particles of matter of different kinds, but the different kinds of matter must have affinity for each other. Wax, when softened, will adhere to a piece of wood, but if the wood be oiled or wet with water, the wax will not adhere to it, the oil or water preventing it from coming in close contact. Mercury will not

adhere to glass. Two pieces of wood may unite with glue, which frequently has greater tenacity than the wood, so that in attempting to separate them, the wood will break before the glue will separate from it. Fluids have the property of adhering to solids, but not in all cases. Water, for an example, will adhere or wet wood or glass, but it will not tallow or other oily substances. This adhesion between fluids and solids is seen in a very curious phenomena, capillary attraction.\*

It is not necessary to show this phenomena that a tube be used. If a piece of glass be held vertically in water, the water will rise up on the glass above the surface of the surrounding water. If another piece of glass is placed in the same position as the first, and brought within a quarter of an inch of it, the water will rise between them. The height of the water will be in proportion to the close proximity of the glasses. This phenomena is shown better with tubes than with plates of glass; if the tube has a very small bore, the water will rise a considerable distance in it, (in a tube  $\frac{1}{16}$  of an inch bore, the rise will be about 4 inches.) By coloring the water, it can be seen very plainly.

Capillary attraction is very important in nature; it is by this process that the surface of the earth is kept moist in dry weather. The rain, when it falls in large quantities, is absorbed by the earth until it becomes saturated: then when the weather is dry, and the moisture on the surface is evaporated, the water again returns to the surface by this adhesive attraction between the earth and the water. This process can be shown by taking some dry porous earthy substance, as a brick, or piece of dry clay, and putting the lower part in water, when the part out of the water will soon become moist. It is also by this that our lamps are kept burning, the oil or whatever fluid is used, is conducted up the wick by capillary attraction, the heat evaporates it, forming it into gas which burns, giving off heat enough to evaporate another portion, which also burns, and so the process goes on until the oil is exhausted. Or, if we put some alcohol in a tumbler, and in another tumbler some water, set them close together, and connect the fluids by a piece of lamp-wick, the water will pass over into the tumbler containing the alcohol, and the alcohol will pass over into the water. This process will go on until they become equally mixed.

We see in endosmose† a process very similar to the above, and probably owing to the same cause.

But to consider this subject now, would lead us too far from what was intended in this article, namely—giving a mere outline of the constitution

\* Capillary, from *capillus*, a hair, a tube having a very fine bore not larger than a hair.

† Osmose, exosmose, or endosmose, are names given to the process by which fluids pass through membranes, inwards or outwards.

of matter, and the forces connected with it. It is my intention at some future time, to take up each of the subjects and treat them more in detail.

The next force to be considered is cohesion, a force that acts upon matters of a similar kind at an insensible distance. This force is opposed by another—*repulsion*—the one tending to draw and hold particles or atoms of matter together, the other forcing them apart, each of them acting on the atoms or molecules.

The force of cohesion is seen in the tenacity of the metals; take iron as an example. We all know with what firmness the particles of iron are held together, a wire of the  $\frac{1}{16}$  of an inch in diameter will sustain a weight of more than five hundred pounds before the atoms will separate; but this cohesive force is not as great in all metals, for a leaden wire of the same diameter is broken by twenty-seven pounds weight. The repulsive force is as great as the cohesive. It would take as great a weight to compress either of the above metals into a smaller bulk, as it would to break them. Cohesion does not usually take place between solids; small pieces of most metals or glass will not adhere by pressure alone, but if they are heated to a degree to fuse them, so that the atoms are at liberty to arrange themselves into definite matter, they cohere when cold. In the case just mentioned, the heat was the repulsive force, for the atoms were driven apart until the cohesion was lost by the distance between them, and as soon as the heat was removed, the atoms came close together, and became firmly united, or they assumed a certain arrangement, so as to become fixed, (for particles of matter are not always further apart in the fluid state,) neither is it necessary that matter must be in a fluid state to allow the atoms to arrange themselves differently. Solid matter, when brought into a semi-fluid, or doughy condition, will unite as in the case of welding iron. Metals that are soft, when the surfaces are perfectly clean, unite if pressed together; two pieces of lead forced together with a twisting motion, unite so as to require considerable force to separate them.

It has been a question whether gold can be welded by the pressure of an instrument. I was, at one time, inclined to think it could not; but, from more recent experiments, I think, probably, I was not altogether correct. Gold can be united by pressure if heated just before the pressure is applied. This can be shown by heating a plug of gold, (either an old one that has been in a tooth for years, or a new one made for the purpose,) and passing it between a pair of rollers, when the gold appears perfectly solid.

Platina is welded by reducing it to a fine powder, and heating and hammering it; there are some cases where solids unite without heat. Two pieces of glass, ground perfectly smooth, will unite, by being pressed, so perfectly that they cannot be separated. They can be cut as a solid



piece, and even when fractured show no disposition to separate at the place where they were united.

A metal that melts at a much lower temperature than another, and has an affinity for it, will unite with it, if the second metal is heated to the melting point of the first, and has its surface perfectly clean. It is by this process that soldering is performed; the borax which is used cleans the surface, and the solder, when melted, unites the two pieces. But in order to solder, there must be an affinity between the two metals or alloys that are used; lead will not solder zinc or iron, for there is but little affinity between them; but zinc will solder iron, as these two metals unite very readily.

The cohesion in fluids gives them the spherical form when falling through the air, or suspended from a point, or on a surface to which they will not adhere—as melted lead, in manufacturing shot, poured from a high tower, assumes a round form and becomes solid before it reaches the bottom. Drops of water on the point of a glass rod are nearly round, and a small quantity of pure mercury, on a glass plate, rounds up into a globular form. If two drops of water or globules of mercury are brought in contact they immediately unite and form one—this is due to the cohesive attraction between the atoms.

It will be noticed that I have mentioned but three forces in this article; there are others. One of the most important is chemical affinity, which will be a subject for another paper.

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## THE PHOSPHATES IN DENTAL HYGIENE.

BY EDWARD PARRISH.

The great natural reservoir of the phosphates is in the igneous rocks, which contain phosphoric acid, combined with lime, magnesia, alumina and the oxides of several of the heavy metals, in minerals which are both numerous and widely diffused. Through the slow process of solution in the waters which permeate the crust of the earth, minute quantities of these generally insoluble salts are carried to the roots of plants, the delicate spongioles of which are continually drawing the fluid from the loosened soil to traverse the plant and be eliminated from its porous leaf surfaces. The mineral constituents being retained in the juices of the plant, are assimilated into its structure, and thus, through the vegetable food consumed by animals, are conveyed to the higher order of living beings, to the growth of which they are so essential. The importance of the supply of the mineral phosphates to the human system, is apparent from their presence as normal constituents of the blood, of the gastric juice, of the bones, and throughout the tissues generally, and their elimination in the

urine and feces, so that any deficiency in the supply of these constituents must of consequence impair the health and vigor of the individual, and in early life especially, must interfere with growth and development.

This deficiency may occur from want of food containing a proper proportion of phosphatic salts, or from defective nutrition, both causes of common occurrence in a condition of society in which are found the half-fed poor, the pampered rich, the over-worked student and the dissipated idler, and in all conditions of life, the ignorant, the vicious and the negligent. Suitable and well-prepared food for all, though it would be a great desideratum, would not secure a normal condition without ample and well adjusted clothing, the avoidance of excesses, sufficient mastication of food, attention to personal cleanliness, free exercise in the open air and sunshine, and an observance of all the laws of health.

It is, in a great measure, by the neglect of these laws that the necessity is entailed upon the community, of doctors, and dentists and pharmacutists; and it is to supply, by appropriate artificial means, those necessities of the system which grow out of defective hygiene, that the three kingdoms of nature are ransacked in the interest of *materia medica*. How, then, can the chemist supply the much needed phosphates to the weak and imperfectly developed? How can the dentist promote the growth of healthy teeth by supplying to the child at the period of dentition, the chief constituents of these important organs? This is the inquiry that it is the object of the present paper to answer.

An obstacle to the successful introduction of the artificially prepared mineral phosphates into the system, is found in their great insolubility, not only in water but in the digestive fluids—unless these are, at least, normally active. So that it is believed that precipitated phosphate of lime, one of the most common of these, when administered in powder, is liable to pass through the alimentary canal almost without diminution in quantity.

Prof. Jackson, of the University of Pennsylvania, was one of the first physicians to appreciate the advantage of eligible combinations of the phosphates in the proportions theoretically applicable to supply the waste in the system, and it was at his instance that some of the pharmacutists of Philadelphia first attempted the application of chemical principles to this end. The first published recipe of the series which culminated in the so-called *Chemical food*, was for a syrup of phosphate of lime; this was published in 1853, by Durand, Jr.; and was followed in the following year by the formula of T. S. Weigand, for a syrup of undissolved phosphate of lime, in which that salt, without excess of acid, was contained in a pulpy *magma* favorable to its absorption and assimilation, and an essay by Prof. Procter, indicating the methods of extemporaneous prescription best

adapted to administer the several phosphates. As the demand for these combinations extended, other pharmacutists, improving upon these formulæ, succeeded in combining in a liquid form the mixed phosphates, in the proportion indicated by Prof. Jackson; and in 1857 I furnished to the editor of the *American Journal of Pharmacy* a formula, which has since been pretty generally adopted, and has been found to give entire satisfaction when skillfully executed, not only as embodying the requisite materials, but also as constituting an elegant and agreeable pharmaceutical preparation.

It has long been a rule with some of the leading pharmacutists, to introduce no new remedy which shall be unpleasant to the taste, and acting on this idea, the solution of phosphates is made into a syrup and colored a rich strawberry color by the aid of cochineal; the flavor adopted is that of orange-flower, and the acidity caused by the excess of phosphoric acid necessary to make a perfect solution, takes from the syrup the clawing sweetness, which is apt to become unpleasant to adults by long-continued use. The name adopted for this remedy has added greatly to its popularity; many persons who object to taking medicine, are attracted by the title *chemical food*, and finding benefit from its use, this prejudice is overcome. Each dose contains two and a half grains of phosphate of lime, which, according to recent investigations, is essential to the formation of cells, and which is an element of prime importance in dental hygiene, as a leading constituent of the teeth; one grain of phosphate of iron, a very popular "hæmatogen," fractions of a grain of phosphate of soda and potassa, adapted to promote digestion, and to supply deficiencies in the secretions, and an excess of phosphoric acid, an admirable acid tonic.

In those cases where the indication is simply to supply phosphates of lime and iron in an assimilable form, free from an excess of acid, as in young children, whose tendencies are to deficient development of the osseous structures, the following extemporaneous preparation may be prescribed:—

Chloride of Calcium,  $\mathfrak{z}\text{ss}$ .  
 Phosphate of Soda,  $\mathfrak{z}\text{vii}$ .  
 Sulphate of Iron,  $\mathfrak{z}\text{ij}$ .  
 Syrup of Ginger,  
 Water, of each,  $\mathfrak{f}\mathfrak{z}\text{iv}$ .

Triturate the chloride of calcium with the phosphate of soda, and three fluid ounces of the water, till the decomposition is complete, and a smooth mixture is obtained, then add the syrup, and finally the sulphate of iron, previously dissolved in a fluid ounce of the water. The resulting mixture consists of the hydrated phosphates of lime and iron, with considerable amounts of sulphate of soda and common salt, rendered pala-

table by sugar, which always commends a medicine to the favor of children.

In my work on Pharmacy, now under revision for the third edition, I have given other forms of preparation of this series of salts; they have impressed me as worthy the attention of dentists, who meet with so many evidences of imperfect nutrition of the osseous system.

At the risk of being charged with exaggerating the merits of this class of nutritive tonics, I am induced to relate, in conclusion, a case mentioned to me some years ago, by Dr. John H. Parrish, of Greensboro, Alabama, a physician of large experience and undoubted veracity. A colored slave on a plantation within his circuit of practice, had been long afflicted with a diseased bone of the leg, which having been under treatment, had grown so much worse of late, that he had determined to amputate it. The time was fixed, and the patient put under the use of *chemical food* as a preparatory tonic; meanwhile the doctor was taken ill with a hemorrhage from his lungs, followed by great prostration, which prevented his attention to practice for months. When he returned to his patient, he found him so far recovered as to be able to walk with facility, the discharges had nearly or quite ceased, his condemned limb was restored, and for aught we know, he may now come to the ownership of himself—a *whole man*.

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### ALLOYS OF GOLD.

BY E. WILDMAN, M. D., D. D. S.

Gold combines with nearly all metals, and for some it has a strong affinity. These combinations, with the exception of that with mercury, are called alloys.

The alloys of gold tend to form definite compounds, and unite in their atomic proportions or chemical equivalents. This property is illustrated in the native gold of the auriferous sands, which is always found alloyed with silver in the ratio of one atom of silver to either four, five, six or twelve atoms of gold, but never with a fractional part of an atom.

Definite atomic combinations undoubtedly take place whenever gold is alloyed, but as the alloys are mixed with each other, or with uncombined metal, they are obscured in most cases. Pure gold is too soft to be used as a base in constructing dental substitutes, hence it is alloyed for the purpose of imparting to it hardness, tenacity and ductility, and for this purpose silver, copper, either separately or in combination, and also platinum are used. Sometimes zinc, either alone or in combination with copper, in the form of brass, is added, generally with a view to give the same quality of gold a lower point of fusion, as in solders.

As gold in the dental laboratory is liable to be contaminated with some

of the base metals, it will be proper to give a passing notice of the effects of such deteriorations, before touching upon the properties of the combinations of gold with the metals commonly used as alloys.

The general property possessed by combinations formed of groups of dissimilar metals, viz:—the less fusible metals, as gold, silver, platinum and copper, with the more fusible, lead, tin, zinc, bismuth, &c., is that the malleability, when cold, is less than that of the superior metal, and when heated barely to redness they are extremely fragile, and fly to pieces under the hammer. This property is so strikingly illustrated in the combinations of gold with some of the base metals, such as arsenic, antimony, lead, tin and bismuth, that when they are present, even in minute quantities, its malleability is destroyed, and it is rendered intractable.

An alloy, one part of *arsenic* to 240 of gold, forms a gray, brittle compound, and even one part of the former metal to 900 parts of the latter, although the color remains unchanged, the alloy is rendered brittle. The affinity of gold for arsenic is so strong that the former is rendered brittle when subjected to the vapor of the latter.

An alloy, containing one-ninth of *antimony*, forms a pale, brittle metal, and when antimony is present, even in the small proportion of one to 1,920 of gold, its malleability is destroyed.

*Lead, tin or bismuth*, alloyed with gold in the proportion of one part of either of the former to 1,920 of the latter, render the gold brittle and unmanageable. The alloy of gold with tin is of a light color, those with lead are darker.

The affinity of gold for lead or tin is so strong that, in swaging plates, if every adhering particle of those metals should not be removed, the heat, in annealing, will cause a union between the gold and base metal, and the surface of the plate will be contaminated.

An alloy of tin 1 or 2 parts to 23 or 22 of pure gold, has been recommended as a fine solder for gold. The brittle nature of the alloys of gold and tin, render them unfit for solders to be used in making artificial dentures.

*Zinc* appears to have less affinity for gold than either lead or tin, although it unites readily with it. Zinc hardens and whitens gold. Zinc and gold in equal parts form a white, very hard, brittle alloy; eleven parts of gold to one of zinc, make a brittle alloy of a pale greenish color; one part of gold and one part of brass, form a brittle alloy.

Zinc, either alone or in combination with copper, in the form of brass, is sometimes alloyed with gold to form solders. In alloying gold with zinc or its combinations, the metal should not be subjected to a long-continued heat, as the zinc is so volatile that it would be dissipated and the proportions destroyed. Among the different alloys of gold with zinc for

solders, that I have tested, the following, when properly compounded, has produced the most satisfactory results; it flows readily and remains unchanged in the mouth, and is eighteen carats fine. The profession is indebted to Dr. S. L. Mintzer, of this city, for the formulæ, the proportions are:

Pure gold, 18 parts;

Pure silver, 3 parts;

Brass wire, 3 parts.

The gold and silver are first melted together, under borax; when thoroughly incorporated, the brass is added, and as soon as well mixed, pour into the ingot mould.

*Iron*, in minute quantities, does not seriously injure the working qualities of gold. One part of iron to eleven of gold, produces a malleable alloy. Yet for dental purposes, care should be taken to remove all particles of iron.

*Copper* is extensively used by jewelers and dentists for alloying gold, generally in combination with silver. It imparts to the alloy a reddish color, which is heightened in proportion to the ratio of copper used, rendering it more fusible and harder than pure gold, without materially impairing its malleability. Gold beaters add from three to twelve grains of copper to the ounce of gold, to give the red tint to gilding leaf, the average thickness of which is only  $\frac{1}{327.555}$  of an inch.

An alloy of gold 76 parts and copper 24, which is about nineteen carat fine, forms a brittle crystalline metal. This is a definite compound represented by the formula  $\text{Au. Cu.}$  By varying the proportions of this alloy, its brittleness will be diminished.

According to the researches of Mr. Napier, of the Mexican Mint, that in an alloy of copper and gold in a state of fusion, the volatility of the latter metal is owing, in a great measure, to the presence of copper. And from recent experiments, it has been satisfactorily ascertained that copper exerts a similar influence over silver when in combination with it, a state of fusion causing loss by volatilization.

*Silver* unites with gold, in every proportion imparting a paler color, proportioned to the amount of silver introduced. It renders gold more fusible, harder and tougher, without materially affecting its malleability. It is used in making gold leaf when pale gold is required. The hardest alloy of gold with silver is two parts of the former to one of the latter metal.

For making plate and solder, silver is used either alone or in combination with copper, to alloy gold. When in combination, copper reddens and causes it to take a higher and more exquisite finish, while the silver



softens down the red tint, & at the same time renders the alloy less objectionable for dental purposes.

*Platinum*, although termed an infusible metal, yet in contact with most other metals, and heated to their fusing point, it readily enters into combination with them. It unites with gold, and when combined in small proportions renders it harder and more elastic, without materially injuring its malleability.

Platinum, when present even in minute proportions, renders gold pale and dull colored.

An alloy of gold with platinum has been recommended as resisting the action of abnormal secretions of the mouth better than the ordinary alloys. In one case that came under my observation, where the secretions were peculiarly acrid, an alloy of pure gold, 22 parts with 2 of platinum, remained unchanged in the mouth, where a fine plate alloyed with copper and silver was rapidly corroded.

Platinum is present in most gold that has been worked for dental purposes, caused by the fine particles of this metal becoming incorporated with the filings in trimming the pins before soldering, and in finishing up the stays or backings of the teeth.

In commercial phraseology, and by dentists and jewelers, the quality of gold is designated by the term *carat*; this is used to express the fineness, not weight. Thus 24 carat gold is pure gold; 23 carat gold contains 23 parts of gold to 1 of alloy, and 18 carat gold 18 of gold and 6 of alloy.

A more scientific method, the one adopted at the Mint, is to rate the fineness of gold by expressing the proportions in thousandths. Thus, the standard of American gold is 900 thousandths; meaning that in every thousand parts of coin there are 900 parts of pure gold, and 100 of alloy.

When we have the purity of the alloy expressed in thousandths, we can readily ascertain its carat, and vice versa.

Thus, if we desire to find the carat of American coin which is 900 thousandths fine, the statement is made thus:

$$1000 : 900 :: 24 : 21.6, \text{ the carat required.}$$

Or, having the fineness of the American coin expressed in carats (21.6) we desire to reduce it to thousandths, the statement is made thus.

$24 : 21.6 :: 1000 : 900$ , the number of parts of pure gold in one thousand of the alloy.

I am induced to give the following rules for alloying gold, believing that they are more comprehensive than any that have been offered to the profession:

1. When the carat is known, to find the quantity of pure gold :

*Rule.*—Multiply the weight by the carat, and divide the product by 24.

Or, let C represent the carat,

“ W “ “ weight.

$$\text{Formula : } \frac{W \times C}{24} = \text{quantity of pure gold.}$$

*Example.*—To find the quantity of gold in 156 grains of an alloy of 19 carats fine :

$$\frac{156 \times 19}{24} = \frac{2964}{24} = 123\frac{1}{2} \text{ grains of pure gold.}$$

2. When the quantity of pure gold in an alloy is known, to find the carat :

*Rule.*—Multiply the weight of pure gold by 24, and divide the product by the weight of the mass.

Or, let A represent the weight of pure gold ;

“ W “ weight of mass ;

“ C “ the carat.

$$\text{Formula : } \frac{A \times 24}{W} = C$$

*Example.*—In an alloy weighing 110 grs., containing pure gold 80 grs., copper 20, and silver 10, to find the carat of the mass :

$$\frac{80 \times 24}{110} = \frac{1920}{110} = 17.45 \text{ carat of mass.}$$

3. To find the carat of a mass composed of different qualities of gold, the carat and weight of each quality being known :

*Rule.*—Multiply the weight of each quality by its own carat, and divide the amount of the products by the weight of the whole mass.

*Example.*—To find the carat of a mass of gold composed of 10 oz. of 20 carat gold, 15 oz. of 12 carats, and 20 oz. of 10 carats :

$$\begin{array}{rcl} 10 & \times & 20 = 200 \\ 15 & \times & 12 = 180 \\ 20 & \times & 10 = 200 \\ \hline 45 & & 580 \\ 580 & \div & 45 = 12.88 \text{ the carat of mass.} \end{array}$$

4. To reduce gold to a lower carat by adding an alloy containing no gold :

*Rule.*—Deduct the required carat from the carat to be lowered, then

divide the remainder by the required carat, the quotient multiplied by the weight will give the quantity of alloy to be added.

Or, let A represent the carat to be lowered ;

" B " " required carat ;

" W " " weight.

Formula:  $\frac{A-B}{B} \times W = \text{weight of alloy.}$

*Example 1.*—To reduce 200 grains of 24 carat pure gold to 18 carats:

$$\frac{24-18}{18} \times 200 = \frac{6}{18} \times 200 = \frac{1200}{18} = 66.6 \text{ grs. of alloy.}$$

*Example 2.*—To reduce 258 grains of 21.6 carat gold (an Am. Eagle) to 18 carats:

$$\frac{21.6-18}{18} \times 258 = \frac{3.6}{18} \times 258 = \frac{928.8}{18} = 51.6 \text{ grains of alloy.}$$

5. To reduce gold to a lower carat by adding to it an alloy of gold of a standard lower than the desired carat :

*Rule.*—Subtract the required carat from the carat to be lowered, divide the remainder by the difference between the required carat and the carat of the coarser alloy, then multiply the quotient by the weight, and it will give the weight of the coarser alloy to be added.

Or, let A represent the carat to be lowered ;

" B " the required carat ;

" C " the coarser alloy ;

" W " the weight.

Formula:  $\frac{A-B}{B-C} \times W = \text{weight of coarser alloy.}$

*Example 1.*—To reduce four ounces of 24 carat gold to 18 carat by adding 12 carat gold:

$$\frac{24-18}{18-12} \times 4 = \frac{6}{6} \times 4 = 4 \text{ oz. of 12 carat gold to be added.}$$

*Example 2.*—To reduce four ounces of 22 carat gold to 18 carat by adding 12 carat gold :

$$\frac{22-18}{18-12} \times 4 = \frac{4}{6} \times 4 = 2 \text{ oz. 5 drs. 20 grs. of 12 c. gold.}$$

6. To raise the carat by adding pure gold or a finer alloy :

*Rule.*—Deduct the carat to be raised from the required carat, and divide the remainder by the difference between the required carat and the carat of pure gold, (24,) or that of the finer alloy, (which ever is used,) and then multiply the quotient by the weight, and it will give the weight of the pure gold or finer alloy to be added.

Or, let A represent the carat of pure gold or finer alloy ;

“ B “ the required carat ;  
 “ C “ the carat to be raised ;  
 “ W “ its weight.

Formula :  $\frac{B-C}{A-B} \times W = \text{weight of pure gold or finer alloy.}$

*Example 1.*—To raise 240 grains of 15 carat gold to 20 carats, by adding pure gold, (24 carats :)

$$\frac{20-15}{24-20} \times 240 = \frac{5}{4} \times 240 = \frac{1200}{4} = 300 \text{ grs. pure g. to be added.}$$

*Example 2.*—To raise 45 ounces of 12.88 carat gold, (see rule 3,) to 18 carat, by adding gold of 21.6 carat, (American coin :)

$$\frac{18-12.88}{21.6-18} \times 45 = \frac{5.12}{3.6} \times 45 = \frac{230.40}{3.6} = 64 \text{ oz. of coin to be added.}$$

The subject relating to melting, working alloys of gold, and those proper to be used in making plates for artificial dentures, will be treated upon in a future article.

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## DENTAL EDUCATION.

BY J. MARCELIN, D. D. S.

The subject of education has, within a few years past, received an increased amount of interest, and even the present troubled state of the times, has failed to divert public attention to any great extent therefrom. The efforts made for the training and instruction of even the more humble portion of our large communities, have met with ample support and encouragement and produced results highly gratifying to every liberal mind. This progress is also manifested in the higher departments of science and art, and the most eminent teachers are brought into requisition to meet the growing necessity. In no profession has there been greater progress manifested, and a more enlightened demand made on the part of the public than in ours, that of dentistry. Until within a few years, it has not been deemed necessary for a dental practitioner to prepare himself by a thorough course of study for the duties of his profession. In many places common artisans have undertaken some of the most complicated dental operations ; in some instances, by dint of strength, succeeding in removing the obstinate and resisting molar ; in others, producing results most disastrous to the unfortunate patient. At the present time no person is considered a dentist by the mere possession of a case of instruments. A general knowledge of anatomy and physiology is indis-

pensable, and the relation each organ bears to another is necessary to a proper understanding of the treatment of the teeth. To the student in this department, the dental colleges afford great facilities for improvement.

Besides the theoretical knowledge to be obtained, all-important in itself, a great variety of interesting cases are presented in the clinic which call for a direct application of those principles which are there taught. In the establishment and maintenance of such institutions, people may have some surety that their interests will be properly subserved, at least in the recognition of some established guarantee against imposition and quackery. The services of skillful and accomplished dentists, would secure to the fairer portion of society, advantages from which I fear many of them are excluded, by the bungling operations of those who have unwarrantably and unblushingly assumed the duties of the profession, and certified their pretensions by advertising their miraculous performances and unheard of discoveries. In every mind the great Creator has implanted an intuitive sense and perception of what is called by Physiognomists and Phrenologists the "beautiful." Personal beauty in the structure and formation of man, has been defined to be the "regularity and symmetry of features, the expression of the eye and the complexion; all associated in the human face." And on the assemblage of such graces, and the attraction of such an exhibition, is it to be wondered at, that the fairest portion of the creation should be more than anxious to preserve and cherish these desirable appendages of the Creator's wisdom and power? Is it not, then, a matter of the highest interest, that the face, in which these graces of personal beauty are assembled, should be protected from those disfigurements and deformities often induced by the operations of inexperienced and self-created dentists? Dental literature is also becoming more general and diffused. To the new Journal now presenting its claims for public consideration, permit me to extend my most cordial welcome.

You will no doubt meet with difficulties, but patience and determination will overcome these. Of the benefit which your journal is calculated to confer, I expect to share largely; and among all our large cities, I know of no one more desirable for such an enterprise, than Philadelphia. The able professors and successful practitioners, who have so long conferred their benefits upon the great city of William Penn, fully justify me in this opinion. I congratulate you, Messrs. Editors, and the profession generally, that the good work of improvement in all matters calculated to elevate the standard and usefulness of our profession is happily enlarging its labors and extending its benefits. Associated with such labors and benefits, may your Journal long prove a most successful and honored co-operator.

## THE DENTAL CLINIC.

BY JAMES TRUMAN, D. D. S.

What constitutes a clinic in a college for dental instruction? This question is doubtless asked repeatedly by two classes of inquirers; one desiring to cultivate a more liberal education than can be granted them under private tuition, and the other, those who have limited their vision of professional examinations to the four walls of their own office. In view of this want I deem a full description of the operative department of the *Pennsylvania College of Dental Surgery* of sufficient moment to merit a place in the initial number of a journal that will probably reach many hesitating as to the necessity, and doubtful of the advantage likely to accrue from a thorough dental education; and while thus balancing their fears with selfish motives, need but the trifling word of good advice to cast the beam in the right direction. *The importance of a well regulated clinic* needs no argument to enforce its position in the mind of any unprejudiced practical thinker. In all collegiate institutions, the instruction must always reach from cause to effect, from the rudimentary thought to the practical illustration. Theories will be enunciated from the desk to little purpose, if the student fails daily and hourly to follow these to their legitimate results. The human mind needs the wear and tear of active experience to mould theory to the stern lines of fact. The truth of this is more clearly evident in the elucidation of dental science than perhaps any of the so-called learned professions. While we always hope to have a clearly defined theory as the corner stone of our superstructure, the education received must always keep the ultimate end in view—a thorough reduction of theory to practice. Hence, in the establishing of dental colleges, the clinical demonstrations of the operative and mechanical departments have been of first importance; for, without these properly managed to produce best results, the college was weakest where force and energy were most needed. In order to carry out this desire to its fullest extent, the first and most important consideration to the student was

## PATIENTS.

In order that these could be induced to submit to operations seldom agreeable under the most skillful hands, it was necessary to appeal to the selfish interest, the desire to accomplish the greatest benefit at the least possible cost. While in some of the colleges for dental instruction, the partial compensatory plan was adopted, this institution from the beginning adhered to the rule, that they have never yet seen any good reason to depart from, to make *all operations free*. The result has been that the duties of demonstrator and students have never been clogged for want of the necessary material to draw from. I am well aware that this has a



tendency to rouse the prejudices of the few, where a dental college may be located. That these prejudices are unfounded, it only needs a daily intercourse with the patients flocking to our rooms to learn that the great mass who enter there would not be likely to lay the foundation of a very profitable practice for any of our professional brethren. To take a more enlarged view of the case, such prejudiced persons must bear in mind, that whatever result may inhere to the individual, the profession at large will be benefited in an untold degree in the education thus received by the poorer classes. The importance of the dental organs to health and happiness are here taught them as they would be taught nowhere else. The whole history of dentistry has been one long battle against deep-rooted error and absurd prejudices. Though the duty of enlightening the public mind, and disabusing it of error, belongs to each member of our profession, it falls particularly to the lot of those who occupy educational positions. The intelligent few are now reaping the rewards of instruction well given and equally well profited by, from those who have preceded us. The great and even more important work of instructing the mass, steeped in terrible and fatal ignorance, falls to our lot; and should we fail to reap the advantage in our own generation, those who tread in our footsteps will gather the fruit, and the world will be the gainer in health, comfort and cleanliness.

The Pennsylvania College opens the 19th day of October for the delivery of introductory lectures, and to allow such students as may be in the city opportunities to practice. From the 1st of November until the close, the demonstrations never lack the necessary stimulus, a want of patients. I have not statistics by me to give a definite idea of the numbers in attendance daily. Reports have been kept heretofore of those only who have been taken under treatment. But our rooms are daily overcrowded by a motley throng, clamorous for the attention that necessarily can be afforded only to the few. All the varied forms of disease that the dental organs take upon themselves, are here manifested; each patient is subjected to an examination, and those received are distributed to the students according to their ability to perform. Patients are required to be punctual to their engagements, and submit to the care of the inexperienced, as well as the more advanced student. The difficulties and discouragements that always attend an entrance to our profession, are thus easily surmounted, and that without the sacrifice of feeling that repeated disappointments often bring in a private office.

#### OPERATING ROOMS.

These are divided into two: the operating room proper, and the extracting department. The former is at present arranged for eighteen

chairs, divided into rows of six each. The students are formed in classes, without regard to ability—each class being assigned to a particular row, changing each day. Engagements are kept by the Demonstrator, in a book properly classified, and always open to the inspection of the students. It is expected and required that the latter will perform their whole duty to the patients of whom they have taken charge.

The extracting department is amply furnished with all the necessary instruments, and is placed daily under the charge of two students, taken in regular order from the roll, so that all have an equal opportunity for practice. All extracting for the day must be performed by them, unless otherwise directed. Patients have not the privilege of selecting the student to perform this duty. To the inexperienced this is a most valuable department. All, perhaps, can recall the tremor with which the first tooth was approached, and the uncertain efforts made to keep the nervous agitation from the patient. The ample practice here very soon enables the merest tyro to grasp boldly all the difficulties he may encounter, or that will probably be met with in his future professional life. During the last session, over two thousand teeth of all kinds were removed, evidence sufficient that practice in this department is rarely wanting.

#### DEMONSTRATIONS.

The operating rooms are open daily, except Saturday, for practical demonstrations in all that pertains to operative dentistry. On that day, at the same hours, the time is occupied by clinical instruction, from some one of the Professors, in illustration of the various subjects taught from their chairs. The students are required to be punctual in their attendance at the daily clinic, as the operations begin immediately at the hour named, and the right to chairs not occupied fifteen minutes after the hour is lost. The first half hour is devoted to making engagements; after that the time of the Demonstrator is wholly devoted to the interests of the students. The inexperienced are taught the proper mode of manipulating, from the formation of the simplest cavity, to its final completement as a good filling. Each operation is subjected to a critical examination, and while it cannot be expected that equally good work will be done, the utmost that can be accomplished will be required of each. The process of culture must of necessity be gradual. In all branches of acquirement, the preliminary steps are the most important, and, to secure a substantial educational basis in our profession, is to every student of vital consequence. The beginner is therefore kept on operations that are best fitted to develop his latent powers, till at such times he may show himself capable of grasping the more difficult problems that follow in the course of instruction. To one accustomed to the slow and uncertain methods of study and practice,

necessarily adopted in private practice, it would be a cause of astonishment to witness the rapid advancement made by pupils in the course of one session. Every course of this Institution has demonstrated the fact, that with the necessary mental qualifications, the perfectly raw student can produce, by four months' practice, better results than are usually exhibited in years of effort where the training has not been intelligently directed. That all will be equally successful is not to be expected; but the incentive is always present, and he must be a dull scholar indeed, whose progress will not be rendered doubly rapid by the constant exhibition of great excellence around him. Association is the chief spur of the human intellect, and through its influence alone we can procure better results, than in the tame routine of office experience.

#### CHARACTER OF OPERATIONS.

The operations that present themselves are as varied as the diseases we are called upon to treat. As I remarked before, the patients are subjected to a critical examination, and should any remarkable phenomena present themselves, the students are expected to examine the case, and receive such instructions as are deemed necessary. This is an especially valuable feature of the clinic, and one not exhibited in the formal reports. Cases are constantly occurring, which, while they do not admit of treatment, are replete with the instruction so necessary in future practice. The range of fillings of course extends from the simple cavity on the masticating surface of a molar tooth, to the most difficult and complicated operation known to the profession.

The students who are not occupied, have the privilege and are expected to watch carefully and critically all the operations performed in the clinic. Many of the higher class of fillings inserted in this Institution, would seem to leave little more to be desired, were we not fully aware that we are yet in the infancy of our profession, and that the most enlarged and liberal culture in theory and practice must be the constant aim of those professing to teach in its several departments. I cannot but regard it as matter for severe reprehension, that it has not been settled as the fundamental doctrine of our profession, that a radical and systematic course of instruction should be the basis to qualify any one entering its—as I believe—sacred precincts. •

#### INSTRUMENTS REQUIRED.

The student is expected to furnish his own instruments for the operative department; and to those who intend entering on their first course, I would suggest that they had better defer procuring instruments until they have entered their names as students. The almost universal mistake is made of supposing that quantity supercedes quality and adaptation to the

operations to be performed. Comparatively few instruments are needed to meet all their wants, and these can be selected under the supervision of either the Professor of Operative Dentistry, or the Demonstrator. The College furnishes all instruments necessary for the Extracting Department.

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## ASTRINGENTS.

BY GEO. T. BARKER, D. D. S.

The great majority of the remedial agents used, and indicated in the practice of dental surgery, belong to, or possess some of the properties of the class denominated astringents, and it is therefore important that each dentist should properly recognize and understand their appropriate uses, properties, and the abnormal conditions requiring their administration. The name astringent has been given to a class of remedies, because of their possessing a certain power which induces contraction, corrugation and consolidation of living tissues. Cullen has defined them to be "such substances as applied to the human body, produce contraction and condensation of the soft solids, and thereby increase their density and cohesion." The effect of astringents is much greater when used externally; but it cannot be doubted that, when used internally for the purpose of obtaining a constitutional impression, they are absorbed into the blood, and are transmitted to all parts acting by direct contact. The local effect of astringents is shown particularly when applied to the mucous membrane of the mouth—a small piece of alum, for instance, taken into the mouth causes instant contraction and puckering of all the adjacent tissues, accompanied with a sense of stiffness or dryness.

Nearly all astringents possess the power of coagulating or precipitating albumen, and this power extends to dead as well as living tissue. Muscular fibre, for instance, when placed under the field of the microscope, is seen to contract when an astringent solution is applied. The chemical influence of astringents on the albumen and gelatin of dead tissues is exhibited by the tanner, who uses an astringent bark containing tannic acid,—the active principle of all the vegetable astringents,—for tanning leather. Insoluble tannates of gelatin and albumen are thus formed, but this chemical action does not take place in living tissue, as the presence of the life force arrests and modifies chemical affinity. Astringents do, however, coagulate fluids and discharges which contain albumen, and by their consolidating influence diminish the calibre of both secretory and nutritive vessels, thus arresting hemorrhage, morbid discharges, and inflammatory action. It is this power which makes them so valuable

as antiphlogistic agents to the dentist, as he is thus enabled to treat inflammatory conditions of the mouth, and through their agency restore it to health.

The constricting action of astringents is supposed to be expended principally upon the unstriped muscular fibres which are found present in the walls of capillaries, in the substance of the heart, coats of the stomach and intestines, in the lining of the ducts of glands, and in the middle coats of the arteries; therefore, most if not all of the astringents may be spoken of as styptics, and, indeed, our most valuable remedies for the arrestation of hemorrhages are selected from this class. They also possess a tonic power, due to the presence of certain principles which will receive attention hereafter; they are also said to invigorate the appetite and to promote digestion. But though astringents possess these properties, ranking them with the general stimulants, when used immoderately or for a long time, they cease to act as stimulants, but become direct irritants, exciting, when taken internally, gastric and intestinal pains, and when used externally, induce inflammation and subsequent sloughing of the part to which they have been applied.

The indications for the use of astringents, both external and internal, are identical, and may, therefore, be treated of conjointly. As has been previously stated, one of the first indications is to arrest inflammatory action, particularly in its earliest stage. This is accomplished by increasing the tonicity of the tissue, and diminishing the calibre of the blood-vessels, thus lessening the current of blood so necessary for the production of inflammation. They are, therefore, called for particularly as local applications in the treatment of inflammation of the mouth, fauces, conjunctiva, intestines, rectum and skin. A second indication for the use of astringents is to arrest hemorrhages or to overcome abnormal discharges; in fulfilling this indication, when used externally, they do not, it is supposed, act upon the disease from which the discharge has its origin, or in any way modify the constituents of the blood, but that their influence is simply to diminish the pores or ducts through which the secretion or discharge escapes. The third indication consists in their use to overcome morbidly relaxed tissues—a frequent sequence of disease, or occasionally seen to exist in persons of a lymphatic temperament, manifested by edematous swellings in the neighborhood of joints, and a general flabbiness of the soft tissues. In both cases, general bathing and lotions containing vegetable astringents are found to be of exceeding benefit. Astringents are divided into two classes—Vegetable and Mineral. The following belong to, and are the most prominent of, the vegetable astringents:

OFFICIAL NAMES.	COMMON NAMES.
Acidum Tannicum,	Tannic Acid,
Acidum Gallicum,	Gallic Acid,
Catechu,	Catechu,
Galla,	Galls,
Geranium,	Cranesbill,
Hæmotoxylon,	Logwood,
Kino,	Kino,
Krameria,	Rhatany,
Quercus Alba,	White Oak Bark,
Quercus Infectoria,	Black Oak Bark,
Rosa Gallica,	Red Roses,
Rubus Villosus.	Blackberry Root.

As many of these possess properties identical, and are used principally internally, such will be selected from the above list for consideration as may be used profitably in dental practice.

Tannic acid, the active principle of the vegetable astringents, is a most valuable agent, and should be found on the case of every dentist. It exceeds the others named in its astringent power, and possesses a strong affinity for albumen, gelatin and fibrine, with which it forms insoluble compounds. Tannic acid is extracted from galls, by means of ether containing a little water; but for a more extended account of the method for obtaining it, the reader is referred to the U. S. Dispensatory.

It has been highly recommended by Mr. Drugg, (*Am. Journal Med. Science*, xxvi., 201,) for the cure of *aphthous ulcers* of the mouth, and for moderating *mercurial salivation*; also, for reducing *sponginess of the gums*, curing relaxed conditions of the uvula and the pharyngeal mucous membrane. Mr. D. also extols it as a remedy for *toothache produced by caries*. He says: "After scarifying the gum with a fine lancet, a piece of cotton, imbued with a solution of a scruple of tannin and five grains of mastic, in two drachms of ether, is to be placed in the cavity." Where the toothache is due to periosteal inflammation, the above practice may be useful, particularly if powdered tannic acid is occasionally dusted on the gum surrounding the affected tooth. The effect, as heretofore described, will be to diminish the current of blood and arrest inflammation. Tannic acid is one of the ingredients of the many tooth powders of the day—its effect being to overcome sponginess of the gums, arrest hemorrhage from them, and promote tonicity. In treating persistent hemorrhage from the socket of an extracted tooth, tannic acid is exceedingly valuable, and will usually prove successful, though it is, perhaps, inferior as a styptic to some of the preparations of iron which belong to, and will be considered

under the head of mineral astringents. A portion of the powder should be applied to a small pledget of cotton, previously moistened with a solution of gum sandrach, and should then be pressed firmly into the tooth socket.

Tannic acid has also been recommended for the treatment of sensitive dentine. Dr. Taft, in his work on *Operative Dentistry*, says: "When tannin is applied to dentine, there is formed a tannate of albumen, which, being insoluble, protects from irritation, and probably incites to healthy condition, the living parts beneath it."

Externally, tannic acid may be applied either in a fine powder, in a saturated solution, or in an ointment. The following wash has been found useful in a morbid condition of the mouth, arising from the irritating presence of tartar, and neglect to properly cleanse the teeth. The gums will, in such cases, bleed freely from slight causes, and sometimes spontaneously. The treatment is, first remove the tartar, insist upon proper attention to cleanliness of the teeth, and a mouth wash as follows, to be used several times daily:—

R.—Tannin, grs. vi.;  
Aqua, ʒi.—*Misce.*

Another, found exceedingly useful in sponginess of the gums, consists of—

R.—Tannin, ʒss.;  
Tincture tolu and tincture myrrh, aa. f ʒij.;  
Spirit of horse radish, f ʒij.—*Misce.*

Eight or ten drops to be added to a wineglass of tepid water—the mouth to be rinsed several times daily.

Gallic acid, the second on the list of vegetable astringents, is used almost exclusively for the arrestation of internal hemorrhages, or for the purpose of controlling morbid discharges—it is not used, we believe, at all in dental practice, being inferior to tannic acid as an external remedy.

Catechu, the next named, is an extract from the wood of the *accacia catechu*, a native of India. It comes to this country in nearly square masses, of a reddish-brown color, inodorous, and possessing a bitter astringent taste. It is readily soluble in water, and also yields its virtues to alcohol. The active principles of catechu are tannic and catechuic acids.

"Its medicinal properties were first discovered in 1601, by Garzia del Huerto, physician to the Viceroy of Goa, who stated it to be an efficient remedy for spongy gums, and a drying and astringent medicine, useful, also, in alvine fluxes, and in removing pain in the eyes. According to Lemery, it is adapted to strengthening the brain, lungs and the stomach,

suitable for catarrhs and for hoarseness, to purify foul breath, and to cure dysenteries and diarrhoeas.”\*

Catechu is exceedingly efficient as a local styptic, and is indicated in the treatment of mercurial sore mouth, sponginess of gums, and inflammation or ulceration of the mucous membrane of the mouth. The following formula has been used with advantage in the treatment of spongy gums, arising from salivary calculi, and neglect of cleanliness, or other causes :

R.—Tincture quillaia,  $f\ 3ij.$  ;

Tincture catechu,  $f\ 3i.$ —*Misce.*

A teaspoonful to be added to a glass of water, the mouth to be rinsed several times, and teeth to be cleansed at least three times daily. A few drops of this on the tooth-brush, particularly if it has been flavored, makes a very agreeable mouth wash ; quillaia or soap bark being a most efficient detergent or cleanser, the catechu acting as the astringent. As it is often desirable to flavor mouth washes, we would here call attention to an elegant flavor, the formula of which is taken from *Parrish's Practical Pharmacy*, page 272 :

*Perfume for Adding to Mouth Washes.*—Take of—

R.—Asarum Canadense,  $3ss.$  ;

Orris root,  $3ss.$  ;

Strong alcohol, (Atwood's),  $f\ 3viij.$

Make a tincture, and add

Tincture of musk,  $f\ 3i.$  ;

Essence of millefleurs,  $f\ 3ss.$  ;

Essence of patchouly, gtt.  $xx.$

For inflammation of the gums arising from the extraction of teeth, irregularity plates or other causes, we frequently make use of the following :

R.—Potass. chlo.,  $3ij.$  ;

Tincture catechu,  $f\ 3ij.$  ;

Eau de cologne,  $f\ 3i.$  ;

Aqua,  $f\ 3vi.$ —*Misce.*

The mouth to be rinsed with a small portion of the solution 20 or 30 times daily. This mouth wash may be diluted advantageously by adding half a pint of water. Dr. Koecker, as a mouth wash after extraction of the teeth, recommends :

R.—Tinct. catechu and honey, aa.  $f\ 3j.$

Mix, and dilute in the proportion of three table-spoonsful to a pint of tepid water or warm sage tea ; it may be used frequently during the day.



Catechu is occasionally added to the charcoal tooth powders for the sake of its astringency.

Galls, excrescences from the branches of a tree growing in Central Asia, Persia and Syria, are seldom used in dental practice. The excrescence is the result of a puncture on the young branch made by a small insect, into which it deposits its egg. Their size is about that of a common cherry. The active principles are tannic acid, gallic acid, and a bitter principle to which the tonic influence is ascribed. They are not much used in general practice, as tannic acid is considered preferable. There is an official tincture which is sometimes used, and has been recommended by Dr. Ziegler, as an ingredient in a mouth wash for chronic, relaxed and depraved condition of gums, accompanied with ulceration, (*Dental News Letter*, Vol. iv. page 78.)

R.—Liq. soda. chlo.,  $f\text{ } \overline{3}\text{ss.}$  ;  
 Tincture gallæ,  $f\text{ } \overline{3}\text{iiss.}$  ;  
 Ammonia muriat.,  $\overline{3}\text{ij.}$  :  
 Mel. opt.  $f\text{ } \overline{3}\text{ss.}$  ;  
 Aqua rosa,  $f\text{ } \overline{3}\text{iiss.}$  — *Misce.*

To be used two or three times daily. Those agents above described are the ones principally used in dental practice. Rhatany is occasionally used, and by some is considered exceedingly efficient as an external astringent. The others named will require no further notice, as they are used principally internally, their general effects having been previously described. In our next, we propose to consider the mineral astringents.

[TO BE CONTINUED.]

## MOUTH WASHES AND DENTIFRICES.

BY WM. C. BAKES.

Among the many articles demanded of the Pharmaceutist, there are perhaps none of greater importance than those adapted for the teeth and gums, and the experience of a few years brings to his notice, such a variety of recipes, each one claimed by its possessor as the best of its kind, that their publication might be of interest to the dental profession.

It is not the intention of the writer to say anything of the merits of the different preparations, but merely to offer the formula with the best mode of manipulation. The *frothy* character of some mouth washes is due to the presence of castile soap, or more generally, soap tree bark—a peculiar bark of the quillaia saponaria, a tree indigenous to Chili, South America. The following formula is ascribed to a dentist of this city:

Take of Tincture of Myrrh, 18 fluid ounces,

“ “ Benzoin, 6 “

Macerate in this

Calisaya Bark, bruised,	1 ounce;
Red Rose Leaves,	$\frac{1}{2}$ "
Cochineal,	30 grains;

Displace, and add

Alcohol,	2 pints;
Oil of Roses,	30 drops.

Filter through paper.

Another very popular mouth wash is said to have originated with a celebrated dentist of Baltimore.

Take of Peruvian Bark, bruised, 6 ounces,

Myrrh,	"	8 "
Cochineal,	"	2 drachms;
Alum,	"	1 drachm;

Diluted alcohol made in the proportion of 3 parts of alcohol to 2 parts of water,

4 pints;

Make a tincture by displacement, and add

Oil of Cloves,	$1\frac{1}{2}$ drachms;
Oil of Bergamot,	8 "

Lastly, filter through paper.

The following, under the title of *Elixir Odontalgique*, has met with some favor:

Take of Resin of Guaiac, bruised, 2 ounces;

Pellitory Root,	"	$\frac{1}{2}$ ounce;
Cloves,	"	2 drachms;
Nutmegs,	"	$\frac{1}{2}$ ounce;
Alcohol,		12 fluid ounces;

Macerate and filter, add

Oil of Rosemary,	40 drops;
Oil of Bergamot,	40 "

#### KREOSOTE TOOTH WASH.

Take of Tincture of Myrrh,	1 pint;
" Benzoin,	1 fluid ounce;
Cologne Water,	4 fluid ounces;
Alcohol,	2 pints;
Water,	6 "

In a part of this mixture, macerate

Peruvian bark, bruised,	4 ounces;
Rhatany root,	" 1 ounce;

Displace, and pass the remaining portion of the liquor over the ingredients, then add

Kreosote, 8 fluid drachms.

A very pleasant elixir for the teeth and gums may be made by the following process: Take of

Orris root, bruised, 4 ounces;  
 Red rose leaves, bruised, 1 ounce;  
 Soap tree bark, " 1 "  
 Cochineal, "  $\frac{1}{2}$  "  
 Diluted alcohol, 4 pints.

Make a tincture by displacement.

Oil of roses, 30 drops;  
 Oil of orange, 50 "  
 Essence of millefleur, 1 fluid ounce;  
 Sugar, 2 pounds;  
 Water, 1 pint.

Triturate the oils and the essence with the sugar, add the water and dissolve without heat. Mix with the tincture before mentioned, and filter through paper.

#### TOOTH POWDERS.

These generally contain prepared chalk and powdered orris root, combined in various proportions with other substances. In the preparation of dentifrices care must be taken that the ingredients be in a state of fine powder, and that the mixture be complete. This may be accomplished by rubbing them together, either with a spatula, or preferably, in a suitable mortar, until they form an apparently homogeneous powder, and passing this through a very fine sieve. An elegant dentifrice may be prepared from the following recipe: Take of

Precipitated carbonate of lime, 3 pounds;  
 Powdered Orris root,  $\frac{1}{2}$  pound;  
 " Sugar, 1 "  
 " Cuttle fish bone, 2 ounces;  
 " Carmine, No. 40,  $\frac{1}{2}$  ounce;  
 Oil of rose, 50 drops;  
 Essence of jessamine,  $\frac{1}{2}$  ounce.

Mix the whole together, and pass through a fine bolting-cloth seive.

#### ROSE TOOTH POWDER.

Prepared Chalk, 3 pounds;  
 Powdered Orris root, 4 ounces;  
 " Rose pink, 4 "  
 " Sugar, 8 "  
 Oil of roses, 30 drops. Mix and seive.

## ORRIS TOOTH POWDER.

Prepared Chalk, 1 pound;  
 Powdered Orris root,  
 " Sugar, each 4 ounces. Mix and seive.

## CHARCOAL TOOTH POWDER.

Take of Powdered Peruvian bark,  
 " Charcoal, of each  $\frac{1}{2}$  pound;  
 " Myrrh,  
 " Orris root, of each 4 ounces. Mix and seive.

## PERUVIAN BARK TOOTH POWDER.

Take of Powdered Peruvian bark,  $\frac{1}{2}$  pound;  
 " Myrrh, 4 ounces;  
 " Orris root, 6 ounces;  
 Prepared Chalk, 1 pound;  
 Oil of neroli, 2 drachms. Mix and seive.

## A CASE IN PRACTICE.

BY J. W. VANDEVORT, D. D. S.

Last March a gentleman called to consult me as to the condition of a Mr. G., who, according to his statement, had been suffering most distressing pain for about six weeks, with what the family called diphtheria. That the attending physician had pronounced the disease as above stated I am not able to say, but would judge, from a description of the treatment given, that it was altogether foreign to what it should have been.

On visiting Mr. G., I found him very much emaciated, having been unable to take solid food for some four or five weeks, exceedingly nervous, jaws firmly closed, and a fistulous opening immediately at the symphysis: also, an artificial opening on the right side of the ramus of the jaw. The teeth at once were suspected as the cause of the trouble. After considerable difficulty I succeeded in opening the mouth, but it was only accomplished with the aid of an instrument designed for the purpose. His breath was very fetid, gums spongy, two inferior molar teeth on the left side badly decayed, quite loose, and very sore to the touch.

At once recommended the teeth to be extracted, which I accordingly did; but before operating gave him half a gill of brandy. Prescribed the following mouth wash, to be used several times a day, to be diluted with a pint of water:

R.—Potass. chlo.,  $\mathfrak{z}\text{i}$ .;  
 Tinct. catechu,  $f\mathfrak{z}\acute{\text{ss}}$ .;  
 Aqua,  $f\mathfrak{z}\text{ij}$ .—Misce.

The following week visited Mr. G., found him convalescing rapidly. The swelling had entirely subsided, and he was almost free from pain, with the exception of a little on the right side of his face.

After a thorough examination of his mouth, which was impossible on the first visit, I discovered the roots of a superior molar tooth on the right side, which, on extracting, were found to be much necrosed.

A nourishing diet was recommended, and a short time after the last operation, was quite surprised, one day, to see the gentleman in my office. He said he was feeling first-rate, in fact, never better in his life. To express in his own words, "He felt himself again, and through the science of dentistry, he believed, his life had been saved."

PITTSBURGH, June, 1863.

### CLASPS ON RUBBER WORK.

BY EDWARD N. BAILEY, A. M., D. D. S.

It is neither advisable nor desirable in all cases to use atmospheric plates in partial sets, having, as we most frequently do, to consult the convenience, pleasure and *pocket* of the patient for whom such a piece of work is to be made. Many persons at the present time suppose they have a knowledge of dentistry, and they not unfrequently become annoying in their suggestions, and fastidious in their demands.

A full gold plate with three or four teeth attached, few are willing to pay for, at the present rates of premium on precious metals; silver plates many object to, on account of the discoloration and constant scouring necessary to keep them presentable and *palatable*; whilst the extensively advertised and circulated (*coralite*, *vulcanite*) hard rubber base, make the public inquisitive as to its merits and its uses. Demands are made for it in most unfavorable cases, and in still a larger number of unfortunate as well as unfavorable cases, it is *forced in* without regard to adaptability or usefulness.

Now, in many cases, particularly obturators, (to which this work is especially well adapted,) it becomes necessary to attach clasps around some of the teeth for greater support and firmness, or, as before remarked, in such cases as we cannot depend upon, and it is not advisable to use the suction cavity; rubber bands are too clumsy, and only useful on long and straight sided teeth, it therefore alone remains for us to use gold bands or clasps; the proper adjustment of which to the teeth, and attachment to the rubber plate, is of the greatest importance, as we have not the advantage of changing them as in metal work; after having accurately fitted the bands to the plaster teeth desired to be clasped, drill two holes in them at the angles of the teeth, or where the bands bend, solder in each a platina pin, with a well turned head, such as are used in Mr. S. S. White's rubber blocks; so that when the pins are in, they will diverge,

and thus hold the bands firmly as the free ends spring over and around the teeth; if desirable, arrange on a temporary plate, and adjust them to the teeth in the mouth; replace on the plaster cast, and clamp with small cloth tacks driven into the teeth, away from contact with the rubber, the head of the tacks securing the bands immovable, so that when the flask is being drawn together, they will retain their places. If the rubber is packed in the opposite part of the flask, it is better to inclose the pins with rubber also, to avoid any undue strain upon them; and in all such cases, except where a rubber rim is wanted above the teeth to be inserted, it is desirable to retain the teeth on the cast, and so incase them with plaster in the flask, so that they will hold the same relative positions to the bands when done, even if the flasks have not been accurately brought together, and this frequently occurs with the flasks now in general use.

PHILADELPHIA, June, 1863.

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## COMPARATIVE ANATOMY OF THE TEETH.

BY C. N. PEIRCE, D. D. S.

In the first number of the DENTAL TIMES, it may not be uninteresting to some of its readers to direct attention to the teeth of some of the lower animals, noting the great variety in position, number, durability and density, and contrasting them with those of the human subject. In giving a broad definition applicable to all classes, we cannot better define teeth, than "as hard bodies projecting from the surface of the mucous membrane, and situated in the alimentary canal, anterior to the pyloric orifice of the stomach." In position, we find them occupying this line in every conceivable variety, so as best to subserve the wants of the particular animal, not only on the superior and inferior maxilla, which bound the anterior part of the mouth, as in the mammalia, but also on the bones which bound the posterior orifices, and intermediate positions, such as the palatine, the vomer, and the lingual bones. Indeed, they are found in every position where they will subserve the purposes of nutrition, by either seizing, holding, or masticating the prey, or aid in locomotion, for the purpose of catching it. With regard to number, we find the same great variety. Commencing with some of the lowest species, we find that the dental system is represented by a single tooth, developed on the median line of the palate, in others the single median tooth above is opposed to two dentigerous plates below, while in others the jaws are armed with four teeth, two in each jaw. From these species may be traced every gradation in the progressive multiplication of the teeth, up to those in which the mouth is crowded with almost an indefinite number of these organs.

The durability of individual teeth varies in the different classes of animals. In the crustaceans, the teeth are shed and renewed with the

external skeleton. In reptiles and fishes they are renewed when injured by wear or lost by violence. In the shark tribe new teeth are always forming, while the oldest and most external are being cast off by the absorption of their bases, through which they are attached to the jaw. In the highest class of animals, mammalia, the teeth are but once renewed, those of youth are gradually shed, and as the animal frame approaches maturity, are replaced by a stronger and more extended set, fitted to subserve their purpose during life.

In density, the teeth bear a constant relation to that of the osseous structure, and not only is this true with different classes of animals, but also in the same classes at different periods of life. Take, for instance, the human teeth at eight, or ten years of age, or earlier; with what ease they can be cut with a sharp and well-tempered instrument; contrast this condition with the same teeth some years later in life, under favorable conditions. The additional resistance offered the excavator, proves without doubt, the increased density of the tooth, by the addition of the salts of lime, and reduction of animal matter. Such is also true of the tissue composing the skeleton. "In the class mammalia, the dental and osseous tissues reach their highest point of development and average density, while in the fishes they are lower in organization, and less hard." The ichthyologist complains of the inadequacy of language to portray the singular diversity and beauty, and the interesting physiological relation which are manifest in that part of their organization. The teeth of fishes, whether considered in regard to number, form, substance, structure, situation, or mode of attachment, offer more various and striking modifications than do those of any other class of animals.

Teeth admit of a general classification, based upon their various external forms, and the purposes to which they are adapted. We have the cone-shaped teeth, with sharp points, such as we find in the canine of the carnivora, also the more simple conical teeth of the shark tribe. These teeth interlock with those of the opposing jaw, and are used either for seizing, retaining, or tearing the prey. The condyles of the jaw in which such teeth are implanted, together with the glenoid cavity, are so shaped as to admit of a liberal vertical, or up and down motion, and but a very limited lateral or horizontal one.

Teeth with sharp, chisel-shaped edges, as the incisors of the rodentia, illustrated in the rabbit, rat, beaver and squirrel, also the human incisors—used principally for cutting—form the second class. Teeth for tearing and lacerating, as the molars of the carnivora, closing upon each other like the blades of a pair of scissors. Teeth for crushing, with their masticating surfaces studded with small cusps or cones, as illustrated in the monkey tribe, where the principal food consists of fruits. And teeth for

grinding, with a broad, flat masticating surface, and jaws so articulated as to admit of great lateral motion, afford specimens of the third, fourth and fifth classes. The grinders of the elephant are an excellent example of the latter class—they belong mainly to animals subsisting on grain, which requires to be reduced to powder before its reception by the organs of digestion. “The conical pointed tooth for piercing, and the broad flat tooth for grinding, offer the two extremes in form; and in passing from the one to the other, we may, by examining the teeth of various animals, observe minute gradations in the change from the vertical to the horizontal development, or vice versa.” “In all instances we find the jaw beautifully adapted for the most efficient use of the peculiar teeth with which it is armed, so that from a view of the teeth we may predict with certainty what would be the form of articulation of the jaw to which they belonged, and on the other hand, a view of the articulation of the jaw from which the teeth have been lost, will furnish us with means of judging of the form of teeth with which it was supplied.”

So intimate are the relations existing between these and the other organs of the structure, that a complete knowledge of the one enables the naturalist to decide upon the habits of the animal, and the order and class to which it belongs.

The shape and arrangement of the human teeth looks much as if man was an omnivorous animal, for among them we find the incisors of the rodentia, the canines of the carnivora, and the molars, in a modified form of the granivorous and herbivorous. In the study of comparative anatomy, man gains more extended views of the relation he bears to the different orders of the animal kingdom, also much that might contribute to his health, comfort and happiness. No works have we read with more pleasure and instruction than those on natural history and comparative anatomy, and to the author of Owen's *Odontography*, are we more indebted than to any other, for the little knowledge we possess on this subject.

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## DENTAL THERAPEUTICS.

BY GEO. T. BARKER, D. D. S.

The attention of the dental profession, as a body, to this subject has not been extensive, and it almost seems as if the endeavor had been made to cause a few agents which are usually found on the dental case, to perform all the requirements of an extended dental practice. Why this should be the case in our speciality in contradistinction to others, is probably due to the prejudice which has existed, and which is fostered even at this day by some of the most prominent practitioners of our profession. Our *Dental Journals* not unfrequently contain articles which, from the known character of their writers, are calculated to arrest investigation and retard research.



in the field of dental therapeutics. We present, as an example, an extract from one of our recent dental periodicals :

"The great want of success in fang filling and treating abscesses, exposed nerves, or sensitive dentine, is the result of too much 'doctoring,' too much 'treatment,' and when the profession has learned to place more confidence in the recuperative powers of the system, more faith in the *vis medicatrix natura*, and less on nostrums, we shall have achieved a success and our progress will be onwards and upwards."

The object of the writer of the above may have been to discountenance "doctoring" or "treatment" by those unfitted or unlearned, or who use agents without any idea of their properties or effects upon the economy ; if so, we can agree with him ; but our own view is, that the want of success in fang filling, treating abscesses, exposed nerves, or sensitive dentine, is the result of our want of a correct knowledge of "doctoring" and the absence of the proper "treatment," and until we have, as a profession, gained such knowledge, we cannot hope for the progress predicted. The successful treatment of the dental affections or conditions named, must be preceded by first, a correct knowledge of their pathological relations. Second, by an acquaintance with and application of such therapeutical agents as may tend to alleviate the disease or restore the parts to perfect health.

Let us, as an instance, take one of the most common dental disorders—alveolar abscess—is it not unfortunate for dental science that such writers as Mr. Tomes should, after an able dissertation on the pathology of this disease, in his treatment throw aside therapeutics, and recommend the following:—

"If, however, the inflammatory action has gone on for a day or two, it is probable that suppuration cannot be avoided, especially if the affection has spread to the gum ; in that case the tooth should be removed, and the gum, if there is reason to suspect that pus has made its way into it, should be freely incised." \*

Dr. Bond, in his recent edition of his work on Dental Medicine, says :

"Sometimes the matter formed within the tooth perforates the alveolus and the gum, and forms a fistulous orifice into the mouth, through which putrid fluids are continually weeping. This is what is called alveolar abscess, and can only be remedied by extraction of the tooth." †

Extracts innumerable might be added to prove that the tendency of much of our literature and teaching is to discourage the application of therapeutical agencies, and to rely only on the recuperative powers of the system or the *forceps*. Now we do claim—*First*. That alveolar abscess is rarely cured through the sole agency of that unknown life-force, to which for want of a better and more comprehensive name we call the *vis medicatrix natura*, but though it does occur in rare instances, it is only

\* Tomes' Dental Physiology and Surgery, page 286. Tomes' Dental Surgery, page 563.

† Bond's Dental Medicine, page 95.

where the attending circumstances of age, health, constitution and development are all favorable. *Second.* That because our present knowledge and faith in therapeutical agents and remedial treatment, as a body, is limited, we ought not to pronounce the affection incurable, discourage treatment, and recommend extraction. We have quoted from writers on the subject of alveolar abscess, who have ignored therapeutical agents in the treatment of this pathological condition, justice to our profession demands that we should state that all dental authors and writers do not hold such views. Dr. Taft, in his work on Operative Dentistry, after the presentation of a clear and concise description of the pathology of the disease, with the most approved methods of treatment with therapeutical agents, thus closes his remarks:—

“In regard to the treatment of alveolar abscess, much yet remains to be learned. With the attainments thus far made in this direction, no aspiring dentist will rest satisfied.”

Such are our own views, and to stimulate and encourage investigation for the benefit of dental science is the object of the writer, and no field presents greater inducements than the one to which we invite attention. A generous profession remembers with gratitude and perhaps for ages will pay tribute to the memory of Spooner, for his contribution of arsenious acid as an agent for the destruction of the dental pulp; to Morton, a dentist, the first to employ ether in surgery; but who can conceive of the suffering that will be alleviated and of the honor that will justly accrue to him who first presents to notice any agent, harmless to tooth structure, that will destroy the sensitiveness of dentine, and enable us to perform those operations which at present are with many so painful and disagreeable, causing patients in many instances, by their dread of our operations, to sacrifice their teeth by neglect of proper dental attention. And there are other dental disorders which fall, we may say daily into our hands, and which require a knowledge and application of dental therapeutics. Abnormal saliva, either acid or alkaline, which we have reasonable suspicion is acting deleteriously upon tooth structure, conditions of mucous surfaces, induced by inflammation, mineral poisons or other influences, are not uncommon, and should be treated, not by stating to the patient, “You had better purchase a bottle of my Mouth Wash,” an article which, however useful in one affection, cannot certainly be expected to be alike useful in all others; but what we do urge is, that abnormal conditions being found to exist, should be treated by prescribing for, and administration of, agents especially indicated by the existing pathological conditions, and that instead of openly or impliedly censuring “Tooth Doctors,” or those who aim scientifically to treat teeth, it should be our endeavor to uphold and encourage those who would wrest from other sciences and other fields potent agencies for the alleviation of dental disorders.

**PENNSYLVANIA COLLEGE OF DENTAL SURGERY.**

The Eighth Annual Session, 1863-1864.

The eighth annual session of the Pennsylvania College of Dental Surgery will commence on the first Monday of November, and continue until the first of March. Preliminary lectures will, however, be delivered each day during the latter half of the month of October, commencing on Monday, the 19th inst. The Dispensary and Laboratory of the College will also be open from that time, where ample opportunities will be afforded for the prosecution of the practical part of the profession under the daily supervision of the Demonstrators, who are gentlemen of known integrity and thorough capability. During October, as well as the entire session, a clinical lecture will be delivered, and operations performed by one of the Professors every Saturday afternoon.

The course is so arranged that fifteen lectures are delivered each week, on the various branches taught in the school. A synopsis of the manner in which each department is treated will be found under the head of the different chairs.

These lectures occupy about the average time of three hours each day. In addition, four hours are daily spent by the student in actual practice. With this object in view, the operating rooms are furnished with twenty chairs, so arranged as to command the best light, and all the appliances necessary for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate.

Each student is required to provide his own instruments, (except those for extracting,) and to operate with them. He is expected to keep them in perfect order, and for that purpose is provided with a table in which they can be locked up when not in use. As the operations performed at the College are entirely gratuitous, a superabundance of patients invariably present themselves.

In the mechanical department every process known in the profession, which has any value to the mechanical dentist, is fully taught; and receipts of valuable compounds are freely imparted. All the conveniences are at hand in the Laboratory for the preparation of metals, manufacture of teeth, (single and in blocks,) mounting, etc.; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression to the thorough construction of the denture, and proper adjustment of it in the mouth of the patient.

In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of Dentistry, the celebrated hospitals and clinics of the city constantly enable the student to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Blockley Hospital, in particular, one of the largest eleemosynary establishments in the world, are open to Medical and Dental students, free of charge. The staff of this institution is composed of some of the most eminent physicians and surgeons of Philadelphia.

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## COURSE OF LECTURES.

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### CHEMISTRY AND METALLURGY.

The course of instruction from this chair will commence with the consideration of the imponderable substances.

The laws that govern the imponderable bodies will next claim attention, with some notice of symbols or chemical notations. Individual elements, and the compounds resulting from their combinations, will then be considered. Organic chemistry will receive its full share of attention.

The course will be illustrated by diagrams and such experiments as can be performed before the class.

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### DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.

The lectures in this department will embrace the Physiological Anatomy of the teeth, general and microscopical, in addition to a minute and careful description of the various operations performed by the dental practitioner.

The microscope, models, and diagrams, will be employed in illustration.

At the Clinic the incumbent of this chair will also demonstrate before the class the various operations described in his course of lectures.

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### MECHANICAL DENTISTRY.

The instruction from this chair will embrace the entire range of manipulations legitimately connected with the laboratory, arranged in two divisions—Mechanical Dentistry proper, and that to which has been applied the appellation of the Plastic department.

I. *Mechanical dentistry proper* will include everything appertaining to the construction of dental substitutes, passing through the different stages of preparation, from taking the impression, to the completion and proper adjustment of the case in the mouth, conjointly with features, expression of countenance, enunciation, etc. It will likewise embrace the metallurgic treatment of the various metals employed, the preparation of plate and wire, the alloying of gold, together with the *alloys* used, as well as those designated as solders.

II. This division will comprise all that appropriately belongs to the manufacture of porcelain or mineral teeth—single teeth, block work, continuous gum-work, vulcanite, etc. The materials, their preparation, compounds and uses, will be specially regarded.

All new inventions, modifications, and improvements, in this branch of the art, will in place receive due attention and investigation.

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### PRINCIPLES OF DENTAL SURGERY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist.

They will also include a careful examination of therapeutic agents and their general application. Their indications in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated, and also the general hygienic rules and principles which come within the province of the practitioner.

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### ANATOMY AND PHYSIOLOGY.

The instruction in this department will embrace a plain and comprehensive view of the structure and functions of the Human Economy. The valuable anatomical preparations of the incumbent of this chair, (consisting of Papier Mache manikins, models in wood, drawings, wet and dry preparations,) will enable him to fully illustrate his course. With the same object, vivisections on the lower animals will also be employed.

The special relations of this branch to the wants of the dentist will be kept steadily in view, and such descriptions of the natural history, microscopical structure, connections, &c., of the teeth, as their importance demands, will be given.

The great facilities for the study of practical anatomy, to be found in the city of Philadelphia, obviate the necessity of providing a dissecting-

room in the College. For the usual fee of \$10, the student can have access to one of several well-ordered and well-supplied dissecting-rooms.

### CONDITIONS OF GRADUATION.

The candidate must be twenty-one years of age, and of good moral character. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College: five years' practice, inclusive of the term of pupillage, will also be considered equivalent to the first course of lectures. The candidate for graduation must prepare and defend a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done, at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall receive the degree of Doctor of Dental Surgery.

### FEES.

Fees for the course, (Demonstrators' tickets included,)	-	-	\$100
Matriculation, (paid but once,)	-	-	5
Diploma fee, -	-	-	30

### TEXT BOOKS.

Wilson's, or Leidy's Sharpy and Quain's Anatomy—Carpenter's Physiology, or Dunglison's Human Physiology—United States Dispensatory, (Neil and Smith's Compendium)—Mitchell's Materia Medica—Fownes' Elements of Chemistry—C. J. B. Williams' Principles of Medicine—Wood's Practice—Erichsen's System of Surgery—Tomes' Dental Physiology and Surgery—Harris' Principles and Practice—Taft's Operative Dentistry—Richardson's Mechanical Dentistry, or other standard works on the subject.

## DEMONSTRATORS' REPORT.

Session 1882-83.

## OPERATIVE DEPARTMENT.

772 patients, for whom the following operations were performed :

FILLINGS.	
Front Incisors, . . . . .	206
Lat. Incisors, . . . . .	110
Cuspidati, . . . . .	57
Bicuspids, . . . . .	207
Molars, . . . . .	508
Treatment and Filling Pulp Cavities, . . . . .	115
Temporary Fillings, . . . . .	12
Total, . . . . .	1215

Of the above there were of

Gold, . . . . .	634
Tin, . . . . .	566
Hill's Stopping, . . . . .	12
Amalgam, . . . . .	3

Of the operations there were

Superficial Caries Removed, . . . . .	11
Removal of Salivary Calculi, . . . . .	46
Pivot Teeth Inserted, . . . . .	5
Treatment of Inflammation of the Gums, . . . . .	3
“ “ “ Pituitary Membrane of the Antrum, . . . . .	1
“ Alveolar Abscess, . . . . .	23
“ for Irregularities, . . . . .	10
“ “ Partial Necrosis, . . . . .	5
Extraction of Supernumerary Teeth, . . . . .	6
“ Teeth and Roots, . . . . .	2061
Total, . . . . .	3386

JAMES TRUMAN, DEMONSTRATOR.

## MECHANICAL DEPARTMENT.

95 patients, for whom the following operations were performed :

Whole Sets of Teeth, . . . . .	10
Full Upper Sets, . . . . .	48
“ Lower “ . . . . .	3
“ Upper “ Blocks, . . . . .	1
“ “ Continuous Gum Sets, . . . . .	4
Partial Upper Sets, . . . . .	43
“ Lower “ . . . . .	7
Obturers, . . . . .	2
Whole number of Teeth Mounted, . . . . .	1242

EDWARD N. BAILEY, DEMONSTRATOR.

## MATRICULANTS.

Session 1862-63.

JOHN B. YOUNG,	N. Providence.	EMERY T. WASGATT,	Maine.
ALEX. O'CALLAGHAN,	Cuba.	L. BUFFETT,	Ohio.
CHARLES DEGENER,	Germany.	G. W. CALDWELL,	Philadelphia.
JOSE RAFAEL BRUNET,	Cuba.	JULES MARCELIN,	New York.
A. O. STREET,	New Jersey.	HENRY C. SPENCER,	Rhode Island.
J. H. HATCH,	California.	JAS. O. A. JOHNSON,	New Jersey.
M. PERALTA,	Puerto Rico,	E. L. PARRAMORE,	Virginia.
JOHN HINES,	Philadelphia.	W. H. FENNEY,	Philadelphia.
W. T. SHANNON,	New Jersey.	W. MITCHELL,	Ohio.
ALFRED T. GOODELL,	Philadelphia.	C. M. WILKIE,	New York.
THOS. A. ANDERTON,	"	J. I. SINGLEY,	Delaware.
J. W. VANDEVORT,	Pennsylvania.	A. J. SHURTLEFF,	Massachusetts.
JAMES BROWN,	New York.	A. S. MILLER,	Pennsylvania.
GEORGE CLARK,	Vermont.	ROBT. H. ANTIS,	New York.
HENRY COWIE,	Michigan.	JAMES S. THOMAS,	"
A. M. KERN,	Pennsylvania.	DARIUS WHEELER,	"
HENRY H. WINN,	Illinois.	ELBERT TODD,	"
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C. L. ASPINWALL,	Massachusetts.	C. H. EUTUJIAN,	Turkey.
SILAS GRIFFITH,	Philadelphia.		

## GRADUATES, 1862-63.

JOHN B. YOUNG,	N. P.,	Sensitive Dentine.
CHARLES DEGENER,	Germany,	Diseases of the Antrum.
JOSE RAFAEL BRUNET,	Cuba,	Circulation.
JAMES H. HATCH,	California,	Caries and its Treatment.
MAJEN PERALTO,	Puerto Rico,	Mechanical Dentistry.
THOMAS A. ANDERTON,	Pa.,	The Teeth.
JOHN W. VANDEVORT,	Pa.,	Our Profession.
JAMES BROWN,	N. Y.,	The Extraction of Teeth.
CHARLES L. ASPINWALL,	Mass.,	The Development, Articulation, &c., of Second Dentition.
SILAS GRIFFITH,	Pa.,	Relative Anatomy of the Teeth.
L. BUFFETT,	Ohio,	Periostitis.
JULES MARCELIN,	N. Y.,	Alveolar Odonto Periostitis.
WM. MITCHELL,	Ohio,	Hemorrhage.
C. M. WILKIE,	N. Y.,	The Blood, its Various Properties and Relations.
J. I. SINGLEY,	Del.,	The Mode of Obtaining Impressions of the Superior and Inferior Maxilla.
A. S. MILLER,	Pa.,	Dies.
ROBT. H. ANTIS,	N. Y.,	The Physiological Anatomy of the Teeth.
ELBERT TODD,	N. Y.,	First Dentition.
GEORGE C. LOAR,	Illinois,	Dental Caries and its Treatment.
C. H. EUTUJIAN,	Turkey,	Caries of the Teeth.



# PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE EIGHTH ANNUAL SESSION 1863—64.

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The regular course will commence on the first Monday of November, and continue until the first of March ensuing.

During October the Laboratory will be open, and a Clinical Lecture delivered every Saturday, by one of the Professors, at 3 o'clock, P. M.

The most ample facilities are furnished for a thorough course of practical instruction.

Tickets for the Course, Demonstrators' Ticket included, \$100. Matriculation Fee, \$5. Diploma Fee, \$30.

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# THE DENTAL TIMES.

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No. 2.

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## ALLOYS OF GOLD.

BY E. WILDMAN, M. D., D. D. S.

(Continued from page 15.)

Pure gold is not employed as a base for artificial teeth, because it is so soft and flexible that in the mouth it would soon lose its shape, and would thereby be rendered useless to the patient. To obviate this defect in the property of gold as a base for artificial dentures, it is alloyed with silver, copper or platinum, either alone or in combination, in sufficient quantity to give it the rigidity and elasticity necessary to resist the force applied to it in mastication, without danger of distortion.

For this purpose, and to this extent alone, should gold be alloyed. Some unscrupulous, persons through cupidity, and others ignorant of the proper quality of alloy to add to the gold, insert plate of sixteen, fourteen, and even as low as twelve carats fine. When this fraud upon the patient is perpetrated by design, the plate is generally covered with a film of pure gold by gilding, which soon wears off in the parts exposed to the attrition of the food, and then the plate becomes blackened and unsightly; and if copper enters the composition of the alloy, the patient will be exposed to the deleterious effects of the salts of that metal.

Gold inserted into the mouth should always possess a sufficient degree of fineness to enable it to resist perfectly the secretions of the mouth in the abnormal, as well as in the healthy condition. The mass of patients, with whom the secretions are healthy, may wear gold of eighteen carats without any material change or detriment to the health. But in many diseases, such as fevers of an inflammatory or a typhoid type, inflammation of the brain, rheumatic and eruptive fevers, inflammation or irritation of the stomach, gout, affections accompanied by derangements of the digestive organs; in mercurial salivation, and in many local and constitutional disorders, the secretions of the mouth almost uniformly change from their alkaline character, and become acrid and acid.

These acrid secretions readily act upon inferior alloys, producing a change of color, or yielding noxious compounds from corrosion, frequently

followed by a train of evils, such as local inflammation of the mucous membrane of the mouth, diseased gums, aphthous ulcers, accompanied by fetid breath, a metallic taste in the mouth, and gastric and nervous derangement, &c. To avoid a liability to such an unfortunate occurrence, it is a better plan never to insert into the mouth gold of a quality below nineteen carats fine; twenty, or as high a standard as the American coin, 21.6 carats, may be used to the advantage of the patient, and also to the satisfaction of the operator, owing to the facility with which it may be adapted to the model, and to the exquisite finish he is enabled to give the work. Owing to the softness of alloys of gold with copper or silver, of a higher standard than 21.6 carats, they are unfit for bases for artificial dentures, and where it is desirable to use gold of a finer quality than the coin, pure gold must be alloyed with platinum.

In alloying gold, the choice of metals, or their combinations for this purpose, is a matter that must be taken into consideration.

*Silver*, when added even in small proportions, renders the gold paler, forming an alloy harder than either of the pure metals; the color of the alloy is lightened in proportion to the quantity of silver used. When silver alone is used in a small quantity, the color of the alloy is not objectionable, and the gold shields the silver from the action of the secretions and substances taken into the mouth, but when silver is used in excess, it imparts to the alloy a pale, brassy color, and when added in sufficient quantity to reduce the gold below the proper standard to be worn in the mouth, the gold can no longer shield the silver from the acrid secretions and substances acting upon this metal taken into the mouth, and the plate becomes coated with a film of brownish-black color. This contamination of silver in the mouth is generally caused by its union with sulphur, for which it has a powerful affinity, forming a sulphuret of silver; this, although unsightly and unpleasant to the patient, possesses no prejudicial or dangerous properties.

*Copper* imparts to gold a reddish tint, which is heightened in proportion to the quantity introduced. When used in small quantities, like silver it is protected by the gold; but when added to an excess, whether alone or in combination with silver, the alloy is readily acted upon by the secretions of the mouth, forming deleterious compounds.

Silver and copper are generally used in combination in alloying gold for making plates, for the reason that a better color is maintained in the alloy, the silver softening down the red tint of the copper, while the latter prevents the silver from giving the alloy a brassy hue, at the same time enabling the operator to give the plate a more exquisite finish.

There is a tendency of many metals, when alloyed, to have an increased affinity for oxygen, and the alloy of gold, silver and copper appears to be

of this character; the experiments made by Dr. James Robinson, corroborates this view. He says: "In order to test the relative effects of strong acids on the alloys of gold employed for plates for artificial teeth, the following experiments were made. The acid consisted of two parts of commercial nitric acid with one part of water. 24.47 grains of gold 14 carats fine, alloyed with silver, lost 1.15 grains by the action of the acid. 24.47 grains of gold 14 carats fine, alloyed with copper and silver, lost 8.42 grains. 24 grains of gold 14 carats fine, alloyed with copper alone, lost 4.77 grains.

"These results are of great interest, because they show first, that gold alloyed with one metal, whether it be silver or copper, is less liable to corrosive action than an alloy which consists of the three metals, gold, silver and copper; secondly, that the alloy with silver alone resists the action better than that with copper alone."

These experiments, although conducted with an alloy far inferior to any inserted into the mouth by respectable dentists, show the tendency of the triple compounds of gold, silver and copper, to have a stronger affinity for oxygen, and consequently more liable to corrosion than the binary compounds, and are worthy of note.

*Platinum*, the third metal used in alloying gold for plate, possesses its advantages and its objections. Alloys of gold with platinum possess the great advantage over those of silver or copper, of being less liable to be acted upon by any corrosive agents secreted in, or taken into the mouth, and being perfectly innoxious to the wearer; another is, that the alloy being harder and more elastic, the plate may be made much thinner than when alloyed with copper or silver, either alone or in combination, yet still possessing sufficient strength and elasticity. The objection to its use is, when a sufficient quantity of platina is added to give gold the required elasticity, the alloy has a dull grayish hue, and is not susceptible of receiving the best finish, giving the plate the appearance of inferior gold. To obviate this objection, copper and silver have been introduced into the combination of gold and platinum. Dr. B. Wood offered to the profession the following formula, which he found to answer the desired requirements of hardness, elasticity, and retaining the natural gold color better than any other that he used, viz:

" 45 or 50 parts of pure gold,  
       2 " silver,  
        $\frac{1}{2}$  " copper,  
        $\frac{1}{4}$  " platinum."

Using 45 parts of pure gold, we have an alloy 22.5 carats fine, and 50 parts of pure gold, an alloy 22.64 carats fine. He prepared the alloy as

follows: "Platina, 1 part; copper, 3 parts; silver, 8 parts, (or from 6 to 8 parts.) This forms a very pretty alloy of a bright silver color, with a yellow tinge. It is quite hard, and of a firm, close structure; malleable, and bears a fine polish. With this I alloy the gold to from  $21\frac{1}{2}$  to  $22\frac{1}{2}$  carats, according to the fineness required, (by adding  $2\frac{1}{2}$  or  $1\frac{1}{2}$ ), as the case may be, to  $21\frac{1}{2}$  or  $22\frac{1}{2}$  of pure gold."

Dr. Richardson, in his work on Mechanical Dentistry, page 61, gives the following formulas for combining gold, platinum, silver and copper for plates:

" 22 dwts. of pure gold,  
           1 dwt. of fine copper,  
       18 grs. of silver,  
       6 grs. platinum."

This furnishes an alloy of twenty-two carats fine, "rich in gold, while it imparts to the plate derived from it a reasonable degree of stiffness and elasticity; preserves in a good degree the characteristic color of fine gold, and does not materially impair its susceptibility of receiving a high polish."

" 20 dwts. of gold coin,  
           6 grs. of copper,  
        $7\frac{1}{2}$  grs. of platinum."

This formula gives an alloy of twenty-one carats fine. "The amount of gold coin given may be reduced with platinum alone, adding to it eight to twelve grains; in which case, although the carat of the alloy is lowered, its absolute purity remains unaffected, and the plate formed from it will better resist any changes in the mouth than gold coin itself."

The same author, on page 62, gives the following formulas for making an alloy of gold for stays, clasps and metallic pivots, viz:

" 20 dwts. of pure gold,	20 dwts. of coin gold,
2 dwts. of fine copper,	8 grs. of fine copper,
1 dwt. of fine silver,	10 grs. of silver,
1 dwt. of platinum.	20 grs. of platinum."

Either of these formulas produces an alloy twenty carats fine.

In alloying gold, it is of the utmost importance that the metals forming the alloy should be uniformly and thoroughly diffused through the whole mass. To neglect this precaution, when platinum is used and not uniformly mixed, where in preponderance it will be liable to form hard points or knots, which will make the alloy unmanageable; and, when copper and silver are used, if not thoroughly diffused, where they are in excess the plate will be harder and more liable to corrosion than the other parts. A

case in point come under my observation a few years since. A lady applied to me, complaining of a brassy taste in her mouth, and soreness of the gums. The mucous membrane, where the plate come in contact with it, was highly inflamed. Upon examining the plate carefully, several bright green spots were found upon the palatine surface; other parts of the plate were bright, and evidently of good quality. These green spots were formed by the corrosion of small particles of copper which had remained uncombined with the gold, and were exerting a poisonous influence upon the patient. Had the alloy been thoroughly incorporated with the gold, this plate was of a quality that it could have been worn without injurious effects to the patient.

The method adopted by Dr. Wood of first melting the platinum and the other alloys together, so as to combine them intimately, will more readily insure their uniform diffusion through the gold. The same plan should be pursued when copper and silver alloys are used. Melt together copper and silver in the proper proportions, cast into an ingot, break up the ingot and re-melt, to insure a thorough mixture of the metals. This alloy may now be forged into a bar, or rolled into plate for future use.

In making alloys of gold, the liability of the metals of different specific gravities to separate or form strata varying in composition must be taken into consideration. This is liable to occur when the alloy is cast in deep ingot moulds, especially when the ingot is so thick as to require considerable time in cooling. To obviate this, it is better to cast in a shallow ingot mould, and, to insure certainty of a complete mixture, cut the ingot into pieces, and re-melt. When the alloy metals have not been previously melted together, this double melting should always be practised; and even when they have, it is safer to melt the alloy twice.

For melting gold, the blast, air furnace or stove may be used. A properly constructed air furnace is preferable to the blast furnace, as in this we dispense with the bellows, and save room, which is an object in the laboratory. A coal stove is not so convenient as a properly constructed furnace, although it is frequently used. Charcoal or coke make a quick, strong heat; anthracite gives a more intense and continued heat, and is advantageous to use when we desire to maintain the heat for a considerable length of time. The objection to its use is, that it generally contains sulphur, which is liable to attack the alloys, especially silver. This objection may be in a measure obviated by allowing the coal to be ignited thoroughly before the metal is placed in the fire.

Ingot moulds may be made of iron, copper or soapstone, and, for temporary purposes, of close-grained charcoal. The closed ingot mould should have sufficient breadth to make an ingot of sufficient thickness to allow repeated forging before it enters the rollers; if deep, it is liable to

the objection before stated. I prefer the open ingot mould, and cast my gold into a bar, and forge repeatedly before it goes to the rollers. The forging compresses the grain of the metal, rendering it of a closer and finer texture. Metallic or soapstone ingot moulds should be smoked or oiled and heated before the metal is poured into them, and care must be taken to allow the presence of no moisture. Black lead, Beaufay's or the Hessian crucible may be employed; the latter is generally used by dentists and jewelers for small meltings. Select a sound crucible; hidden flaws may be detected by the ring, or by grasping it in the hand, holding near the ear; should a crackling sound be heard, reject it, and save the trouble of washing ashes to recover your gold. Prepare the crucible by rubbing the internal surface with borax, so as to give it a thin coating. This fuses into fluid enamel, and facilitates the running down of the metal, and prevents small particles from adhering to the sides of the crucible. Care should be taken not to use an excess of borax before the metal has run down and shielded the bottom of the crucible, as borax has such a strong affinity for the silicious substance of which the crucible is composed, that it would readily destroy its texture, and allow the gold to escape. Place the metal in the crucible, with a small piece of borax on it, and when the metal commences to run down, add borax in sufficient quantity to cover the metal. The borax is readily transformed into a glass, which dissolves any oxide that may be present, rendering the surface of the metals pure and clean, thereby facilitating their union and intimate incorporation. At the proper heat, the glass of borax generally adheres to the sides of the crucible, leaving the metal exposed in the centre. When the metal in the centre is free from bubbling or clouds, and presents a clear, bright appearance, technically termed the *bull's-eye*, it is in a fit condition to pour into the ingot. Should the metal appear cloudy, add a little nitrate of potash, cover up the crucible, and allow it to remain a short time. When the metal has assumed the proper appearance, pour quickly, having the ingot mould near the furnace.

The ingot should now be forged down to the proper thickness for the rolling mill. During this operation the metal must be frequently annealed, and whenever, as in working down an ingot into wire, the edges have to be forged, precaution must be taken after hammering the face, to anneal before operating upon the edge; and vice versa, this same precaution to anneal must be observed in rolling out plate, when the direction through which it has passed the rollers is to be changed. In forging, care must be observed not to draw out the edges, first, while the centre is left thick, as in such case in bringing down the central parts the strain will be so great upon the condensed and hard edges as to cause

them to crack. In working out gold, all the tools should be smooth and free from oxide, and the metal should always be pickled after annealing.

In milling or rolling, where the plate is desired to be of uniform thickness, the rollers should be adjusted equi-distant; in this manner they must be brought up after each passage of the metal between them. They should be brought together gradually, in order not to strain and injure the texture of the metal, and, whenever the metal shows signs of hardness, it should be annealed.

The subject of frequent annealing has engaged some attention; some assert that it injures the texture of the metal. Alloys of different degrees of fusibility will bear different degrees of heat in annealing. The more infusible the alloy, the higher degree of heat it will bear without injury. If the alloy be heated in annealing to a degree that it begins to soften down or sweat, it becomes granular, or like cast metal, and its tough or fibrous character is destroyed; but if the heat is only raised to a sufficient degree to loosen the tension of the particles among themselves, the metal will remain uninjured. For ordinary gold alloys a red heat is sufficient. Blistering is not necessarily produced by frequent annealing; it may occur the first time a plate is annealed. The primary cause is that minute portions of air become inclosed in the mass of the gold in pouring, these globules become condensed and elongated in working out the plate, and when heat is applied, if the expansive force of the air is sufficient to overcome the resistance offered by the lamina of metal covering it, a blister is formed.

The tenacity, elasticity, ductility and hardness of gold, may be improved by its proper treatment in forging and milling; and good sound metal, by improper treatment, may be rendered intractable and full of flaws. Notwithstanding the hardness of metals, or the difficulty of moving the particles among themselves in the solid state, the operation of forging, rolling into plate, or drawing into wire, cannot be performed without a material internal change of the relative position of the component particles; in either of these operations they become condensed, and glide along upon each other's surface to a certain extent without weakening their cohesion. This condensation and gliding of the component particles of the metals has a limit, and if carried beyond this limit, the power of cohesion is overcome, and the metal is rent asunder, or internal flaws or seams occur. But, if the metal is annealed within this limit, its integrity is preserved, and the tension acting among the atoms counteracting the cohesive force is removed, and the metal is restored to a condition suitable for further extension.



## DENTIFRICES, &amp;c.

BY CHARLES E. FRANCOIS.

In the July number of the *TIMES* is an article on "Tooth Washes and Dentifrices," with several recipes for each. Such generous contributions are worthy of admiration, and our professional brothers, who are free to communicate the result of their investigations to the benefit of the profession at large, and who, instead of shutting their doors and hearts against their neighbors, are willing to impart instruction to each other, certainly deserve much credit. They set an example, which, were it universally imitated, would tend greatly to elevate the grade of our professional platform, and inaugurate a mutual aid and social element system, the result of which must, in the end, prove much like the "casting of bread upon the waters." I am satisfied that we can all learn from each other, and therefore should cultivate a social intercourse, with a free exchange of thought and sentiment. If we exhibit a generous spirit to others, we call forth from them a similar response. Thus we can labor and co-operate with each other to our mutual advantage.

But to come to our subject. Your contributor truly intimates that it is of great importance that the various articles prepared for the teeth and gums should be of the "best possible kind." Of course no one will deny this. We have then but to ascertain which *are* the best preparations for the purposes indicated. Which are of the greatest benefit, and which the most free from objections? I shall refer more particularly to preparations for keeping the teeth clean. Our patients are recommended to use "tooth powder," that their teeth may be kept free from all extraneous substances; the breath pure, and not tainted by decomposed matter lodged about their interstices. Many persons are prejudiced against the use of dentifrices, fearing that they may prove more injurious than beneficial. That there is some ground for this prejudice, I am fully convinced. There are many substances in common use for cleansing the teeth, which are decidedly objectionable. Much injury has resulted from the use of acids, and much has been caused by using hard gritty substances. Tooth powder should be pleasant to the taste, that it may be used freely. It should also be as nearly *soluble* as possible. Charcoal, cuttle-fish and pumice-stone are unfit for common use. The harsh, insoluble particles are forced between the teeth and beneath the margin of the gums, forming a base for the deposit of salivary calculus, which, as it concretes, severs the membranous connection. The gums are thus kept in an irritated condition; the alveolar process becomes exposed to the action of destructive fluids, consequently absorption takes place, and the teeth loosen and fall out. I have known instances where particles of charcoal have remained imbedded beneath the surface of the gums for upwards of five years after its use had been

abandoned. *Orris root* and *Peruvian bark* are less objectionable, yet their properties are usually overrated. The latter is unpleasant to the taste. The same may be said of powdered gum *myrrh*. Fine *soap* is good so far as it goes, but used alone has not sufficient body. *Borax* is one of the best ingredients that can be used in forming a dentifrice. It tends to allay irritation of the mucous membrane, and imparts a peculiar sweetness to the mouth. Where an *astringent* is needed, a suitable *wash* should be prepared, adapted to the particular case. Pure precipitated chalk forms a most excellent base for tooth powder. It is entirely soluble in acetic acid. I will give several formulas, quite simple and not very objectionable :

Take of fine old powdered Soap,      lbs. ij. ;  
                     Precipitated Carb. of Lime,      “    vj. ;  
                     White Sugar,                              “    ij.

Mix, and flavor with the oil of wintergreen.

Take of Prepared Chalk, lbs. iv. :  
                     Powdered Borax,  
                     “      White Sugar,  
                     “      Rose Pink, aa lbs. iss.

Mix, and flavor with oil of rose or wintergreen.

These may be classed among the soluble powders. The following forms a very agreeable dentifrice :

Take of Prepared Chalk, lbs. iij. ;  
                     Powdered Borax,  
                     “      Orris root, aa lb. j. ;  
                     “      Cardamon Seeds, ʒij. ;  
                     “      White Sugar, lb. j.—Mix.

If color is desired, add one pound rose pink, and less chalk. Flavor with either oil rose, oil wintergreen, neroli, or jessamine. This is a mere matter of taste.

Tooth powder should be thoroughly triturated in a wedgewood mortar, and finely bolted. The objects of its preparation and use are, to keep the teeth perfectly clean : to neutralize any fermented matter secreted in the interstices ; to allay irritation of the gums, and to correct fetid breath. It should be used sufficiently often to keep the mouth in a good condition, even though it be several times a day. Prepared in a simple manner, no fears need be entertained that the teeth will wear out from its frequent use. As it dissolves readily, it must of course be used as dry as possible ; and will keep best in well stopped glass jars.

As regards *astringents*, I have less to say. Remedies for a diseased condition of the gums should be varied to suit circumstances. For an

ordinary mouth wash, after teeth have been recently extracted, I use the following :—

R.—Tincture gallæ, f ʒj;  
 “ myrrh, f ʒvj;  
 “ gualth, f ʒij.—*Misce.*

Dilute with water.

Prof. Barker gives a list of astringents in an excellent article, to be found in the July number of the *TIMES*. Tannic acid, tinctures of opii and catechu, potassæ chlorate, and borate of soda, are among the best pharmaceutical preparations for unhealthy gums. In some cases more powerful drugs are used, such as iodine and nitrate of silver, and frequently a *systematic* treatment seems necessary to accomplish a proper result.

NEW YORK CITY.

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### FRACTURES OF LOWER JAW.

BY DR. L. C. WHITING.

Having treated a few cases of fracture of the inferior maxilla since coming to this place, it occurred to me that it might be of some advantage to the younger members of the profession to know the method adopted to hold the parts in place. The first one was broken between the left cuspidati and lateral incisor. The left side of the jaw was crowded inwards, so that it did not articulate with the upper teeth. I made a strong silk thread fast to the left central incisor and left bicuspid; after placing the broken parts in place, the two strings were tied firmly together across the cuspidati and lateral incisor. The lateral incisor being loosened, I wove a string around that and the firm teeth on each side in such a way as to brace it up as well as possible; then took a cast of the teeth and gums, and made a plate of vulcanized rubber to fit the gums on the inside of the mouth, letting it come well towards the points of the teeth, drilling some holes through the plate close to the gums, so as to tie all the teeth fast to the plate. No bandage was used, the bone united smoothly and firmly, the teeth articulating the same as before the accident.

My experience with the bandage has been unsatisfactory. It would stretch enough to be of but little use, or else would crowd the bone out of place. In a case of compound fracture, I took a cast of each part separate, made thin casts, and trimmed them off so as to bring the teeth in their natural position, reset the pieces in fresh plaster, and made a plate the same as in the first case.

Where any of the teeth are gone, so that clasps can be used, I should put them on as additional strength and security. When bandages are required, a plate of this kind prevents the parts being crowded out of place.

EAST SAGINAW, MICH.

## SUPERNUMERARY TEETH.

BY JAMES TRUMAN, D. D. S.

In the observation of irregularities, less attention has been paid to this class of abnormal creations than the subject deserves. For, notwithstanding their simple character and still more simple mode of treatment, there are few cases that present themselves which require more careful observation and accurate judgment.

Supernumerary teeth exhibit themselves in two distinct forms, so decidedly different in their character, that it does not seem admissible to class them under one head. We have the perfectly formed teeth developed in the dental arch, resembling so nearly the normal series, that the closest examination cannot detect any difference between them; and the irregular form that present appearances peculiar to themselves. It is therefore necessary, in writing of these distinct classes, to give them separate titles, and I shall adopt Dr. Tomes' nomenclature in considering the *regular* and *irregular* forms as the *supplemental* and *supernumerary*.

The class coming under the former head are, from my observation, very limited. They have been reported as exhibiting themselves as far posteriorly as the molar teeth, but I am satisfied they will be found, almost invariably, ranging with the incisors. Two cases came under my observation, during the last session of the Pennsylvania College, that were remarkable for the regularity and very close resemblance to the permanent teeth. In both these cases the contour of the arch was very perfect, teeth more than ordinarily well developed, both as regards structure and regularity; the supplemental tooth in both cases appearing in line with the superior lateral of the right side; and, as far as examination could detect, equally perfect with the other two laterals. Remedial treatment in either case was unnecessary, the defect being scarcely noticeable. Dr. Tomes mentions having seen several cases of five inferior incisors, and doubtless other practitioners could testify to having met this form of irregularity; but I am compelled to think that the exhibition of supplemental teeth in the arch is of extreme rarity. It is of no uncommon occurrence for the deciduous teeth to drop in the arch in range with the permanent set, but these are so well known and easily distinguished, that no one could hesitate in selecting them from the supplemental tooth.

The *supernumerary teeth* are generally, like the supplemental, found in the anterior part of the mouth, presenting, at times, a very peculiar appearance, and without doubt giving rise to the common belief in a *double row of teeth*. The difficulty in properly determining the character of these teeth has been the cause of many doubts and misgivings among the younger members of the profession, and has often puzzled those in

long practice. I have in my possession a number of these abnormal growths; and while they present a very great variety of form, they agree in many particulars, so that a general idea may be formed of the characteristics of this class, enabling the observer to readily distinguish them from the normal teeth. To render this distinction palpable to the reader is far more difficult. Indeed, any description will probably fail to render clear to the mind of the student the peculiar formations they take upon themselves. The object of this article will be subserved if attention is attracted to these interesting developments, and more attention bestowed upon them than they have heretofore received. A case presented for treatment at the clinic of the Pennsylvania College, that at first view appeared to be two supplemental teeth, entering the mouth posteriorly to the superior incisors. While they remained in place, it was difficult to determine their true character, being deeply imbedded in the mucous tissues of the hard palate. Their forms being so nearly allied, one to the lateral and the other to the cuspidate, that they could readily have been mistaken for supplemental teeth. Upon extraction, they presented the unmistakable characteristics of the supernumerary, but also exhibited some anomalies in general appearance worthy of notice. One was really a double lateral—if I may use the term—connected posteriorly, so that, on turning round, it presented a very fair imitation of a lateral incisor for either side of the arch. The other was not so marked in its resemblance, but still so nearly presented the well-known outlines of the cuspidate as to have been readily mistaken for one. This also had the double appearance, but not as perfect as its fellow. In another case coming under observation, the tooth presented the general character of a lateral incisor with an imperfectly formed cusp posteriorly, but the general inclination to the cone shape—a marked characteristic of all this class of teeth—is preserved in this specimen. Another that I have before me might easily be mistaken in the mouth for a bicuspid, having three small cusps, crown irregular in shape, but in general configuration similar to that class. In one case that presented for treatment at the clinic, two supernumerary teeth were found adjoining the superior wisdom teeth of each side on the buccal surface. The crown of one of these was a wisdom tooth in miniature, while the other resembled a bicuspid. But it would uselessly prolong this article to describe all the different varieties that present themselves. No two that I have ever met with are exactly alike, but, like other abnormal creations, they seem to be out of the pale of law, making their appearance without much regard to time or place. But, notwithstanding their erratic character, they have peculiar features that almost invariably present themselves:

First in order, then, is the before-mentioned tendency to develop into

the cone shape. This is the most striking feature, and will enable any one to immediately detect their true character.

Second. Their irregular shape, resembling nothing exactly in the whole normal teeth.

Third. The enamel line at the junction with the fang is clearly marked, forming an abrupt edge. This is not the case with permanent teeth of the normal set, and would class them more directly with the deciduous, though only in this particular, for they bear no resemblance in any other respect.

Fourth. Their very short, stumpy roots. This is universal; and as far as my observation goes, and that of many writers, they are invariably confined to one fang, and these generally form with the crown a gentle curve, but in one specimen before me the whole tooth is as straight as we usually find the permanent teeth.

The general appearance of supernumerary teeth would indicate that they are formed and grow with the permanent teeth; indeed, there is no reason that I have yet discovered for supposing that they have any connection with the growth of the deciduous set. The structure of the enamel and dentine is very compact, more so than is usually found in the permanent teeth. They are, in consequence, not easily affected by caries. I have seen but one in that condition, and that only in one small spot.

It is scarcely necessary to say that extraction is the only remedy for this class of irregularity. Cases may occur where it would be preferable to allow a supernumerary tooth to remain when found in the arch, rather than remove it, and thereby cause a defect difficult, if not impossible, to regulate; but such must be very rare. They generally present themselves *in* or *outside* of the line of the normal teeth.

To theorize in regard to the causes of these abnormal growths, is not the intention of this short article. I desire it to be suggestive in its character, that, by calling the attention of the profession to these irregular forms, more light may be thrown upon them, and a closer observation in regard to their growth be given them than has heretofore been accorded.

In a generous profession, no exhibition, however small and apparently insignificant, can be passed over with careless indifference. A careful observation of these minor matters is oft-times fraught with more real benefit to the student than long dissertations in theoretical matters that do not reach the practical needs of the beginner.

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☞ We have received from Lindsay and Blakiston their catalogue of Medical, Surgical, Dental and Scientific Books. Also, a copy of their Physicians' Visiting List, Diary and Book of Engagements for 1864.

## ASTRINGENTS.

(CONTINUED.)

BY GEO. T. BARKER, D. D. S.

The first of the mineral astringents to which we shall direct attention, is the double salt commonly known as Alum; officinal under the name of *Alumen*, and denominated chemically, from its constituents, the *sulphate of alumina and potassa*. Alum is used both as an internal and external remedy, in each of which its astringent influence is clearly marked; but it is topically that alum is most used, and particularly in cases of hemorrhage from the mouth or throat; it is also efficient as a styptic in cases of persistent bleeding from the nose. It may be in such cases powdered and snuffed up, or blown into the nostrils, through a quill; or a solution, containing fifteen or twenty grains to the fluid ounce, can be injected up the nostril. When the bleeding takes place from the membrane where it is easily accessible, a pledget of cotton or lint, saturated with the solution, may be passed into the nostril, allowing it to remain until complete closure of the vessel has taken place. The same method has been recommended in cases of bleeding from the socket, after the extraction of a tooth; and, as a remedy always to be found at hand, it may be exceedingly useful; particularly if in conjunction with the astringent solution, constant steady pressure upon a "graduated compress" is made with the closed jaw. Velpeau has found finely powdered alum a very efficient remedy, in a not unfrequent affection of the mouth, which causes intense suffering, besides interfering with mastication. It consists in an abnormal growth, and subsequent inflammation of the gum, around the third molar tooth. The swollen gum overlaps the tooth, the adjacent part of the cheek is hard and swollen, frequently occasioning immobility of the jaws. Burnt alum (*alumen exsiccatum*, U.S.) is considered the most efficient in such cases. Leech bites occasionally are the cause of alarming hemorrhage, leeches having the power of secreting a fluid at the mouth of the wound that prevents contraction of the vessels; these have been treated with the best results with a solution of alum. A saturated solution of alum in warm water should be made and applied to the bleeding wound on a pledget of cotton, and there retained, with a moderate amount of pressure, until closure of the vessel has taken place. Alum has long been employed for the treatment of mercurial pyalism with the most advantageous results; also in diphtheritis and tonsillitis.

Alum has been found exceedingly useful in arresting inflammation of the mucous membrane, particularly if used directly after the extraction of the teeth; a small piece of alum held in the mouth for a few moments, five or six times daily, will be found of advantage.

The following mouth wash, to be used after the extraction of the teeth, is given by Mr. Fox.

R.—Alumina, ʒij;  
Decoct. Cinchonæ;  
Infus. Rosæ, aa f ʒij;  
Fiat Lotis.—*Misce.*

Small quantites of alum have been recommended, from a very early period, as an ingredient in tooth powders and mouth washes.

A solution containing from half an ounce to an ounce of alum in a pint of water, and sweetened with honey, forms a convenient gargle or a mouth wash for the mucous surfaces.

The preparations of lead are occasionally used in dental practice, and will require a brief notice. These preparations accidentally introduced into the system, or when used medicinally, require great care and watchfulness, as when they are continued for a length of time the astringent influence is lost, and is followed by a sedative one; a poisonous condition being established, which presents certain marked phenomena which may possibly, if neglected, result in death.

Painters and others whose business calls them to be present where some of these preparations are used or manufactured, are particularly liable to be affected by lead poisoning; but where any of these agents are used medicinally, the skillful physician will watch for any untoward symptoms, and immediately discontinue the use of the medicine. The first indication of lead poisoning is felt and seen in the mouth, and it is reasonable to suppose that many of these cases will naturally pass first in the hands of the dentist; it is therefore a duty that he owes to himself and his profession to be able to diagnose the difficulty, and if he does not feel it his legitimate duty to treat the patient, he should at least warn the sufferer of the impending danger, and urge appropriate medical treatment.

The first symptoms of lead poisoning are a peculiar sweetish taste; mouth and nostrils dry; a fetid disagreeable breath; urine scanty, with a tendency to costiveness; the stools of a slatish color, giving evidence of diminished biliary and intestinal secretions. The person will also become anæmic and emaciate rapidly; indeed, this symptom usually precedes all others, as it has been stated that "among those who work in lead the emanations of this metal are apt to produce a peculiar cachexia, before the more definite diseases which it gives rise to are developed. Its signs are a loss of flesh, or a flabby state of the muscles; a sickly pallor of the countenance; and judging from the shrunken state of the veins, and discoloration of the skin, anæmia in its most marked degree."—(*Stille's Therapeutics.*) Intestinal and gastric sensations of a painful



character are frequently noticeable ; but, perhaps one of the earliest and most universal symptoms of lead poisoning is to be found around the gums and the teeth at their necks. This consists in a blue line, first described by Dr. Henry Barton, in 1834, as "a narrow leaden blue line about one-twentieth part of an inch in width, while the substance of the gum apparently retained its original color and condition." The presence of this line has been, by some pathologists, thought to be due to the chemical combination of one of the constituents of the saliva with the metallic preparation in the tissue, forming the sulphuret of lead. This position seems reasonable, from the fact that the bluish appearance has been discovered in some instances on the mucous surface of the cheeks and lips. With some persons very small quantities of lead will develop symptoms of poisoning, there seeming to be a peculiar idiosyncrasy to the influence of lead preparations. Thus, lead poisoning may be developed from sleeping in a room freshly painted ; and it is stated that many cases have occurred from the use of snuff containing the red oxide of lead, or supposed to have become impregnated by being packed in leaden cases. (*Am. Jour. Med. Sci.*, 1857, 406, 542.) Readers of the foreign Dental and Medical Journals will doubtless remember to have seen several cases reported where general debility, and loss of health resulted, and was ascribed, to the use of vulcanized rubber as a base for artificial teeth ; the symptoms, if we remember correctly, were many of them identical with that of lead poisoning ; and we have thought this difficulty might have been occasioned by the presence of one of the preparations of lead used in the preparation of the gum. We present extracts from an English Patent issued to Stephen Moulton ; sealed August 14th, 1851 ; enrolled February, 1852.

One part of the invention consists in combining gutta percha or caoutchouc, with a mixture of sulphite or hyposulphite of lead or zinc, and submitting the compound to the action of a high degree of heat. The mode of making the compound is to free the gum from its impurities, then take one or more pounds weight of it, or as much as can conveniently be ground or mixed at a time, and add from two ounces to half a pound of the sulphite or the hyposulphite of lead or zinc, and the artificial sulphuret of lead or zinc in about equal proportions of each, together with from two to twelve ounces of Paris white or powdered chalk. This mixture is ground between heated rollers until the materials are thoroughly incorporated. We have every reason to suppose that the above mentioned material, if introduced into the mouth, might prove seriously detrimental to health.

Acetate of lead (*plumbi acetat*, U. S., *Lead., Ed., Dub.*) is a white salt commonly known under the name of sugar of lead. It is obtained

by acting on thin plates of lead with dilute acetic acid or vinegar. This must be performed in a shallow vessel, so that a part of each plate will, from time to time, be exposed to the action of the atmosphere. The metal, after becoming protoxidized, dissolves in the vinegar, until a saturated solution is formed, which is then evaporated to crystallization. There is another mode of obtaining acetate of lead much more rapidly than the process above mentioned; for a description of which the reader is referred to the U. S. Dispensatory.

Acetate of lead, like most of the other astringents noticed, is used both internally and externally, but it is particularly efficient as a local application for the relief of inflammation, when brought into direct contact with the affected surface. Internally, it is used to arrest hemorrhages, and control morbid discharges. Externally, it is used as an eye wash in ophthalmia, in chronic inflammation of the nasal passages accompanied with purulent discharge, in chronic suppuration of the auditory meatus, in affections of the bowels, and very generally for relief of inflammatory conditions of the skin, and subcutaneous tissue. Acetate of lead is used as a mouth wash, and as a gargle, and has been found particularly useful in the treatment of mercurial salivation; a solution of acetate of lead, in the proportion of two or three grains to the fluid ounce, has been highly recommended. It will most likely cause blackening of the teeth from the cause previously mentioned, viz: the formation of the sulphuret of lead, through the action of the saliva upon the constituents of the salt. This discoloration will not, however, injure the teeth, and will be but temporary, and in many cases hard brushing with a dentifrice, containing tannin, will quickly remove it from the teeth; indeed, it has been stated by Dr. Alexander Smith (*Ed. Med. Jour.*, 1856,) that in cases of distinct lead poisoning, the blue line on the teeth and gum may be absent in those persons who use the tooth brush effectively and with regularity. Its absence does not, therefore, prove that the person is not suffering from the noxious effects of some of the lead preparations.

Acetate of lead has also been used with considerable success in the treatment of aphthous condition of the mouth and fauces, and to prevent the development of inflammation of the tonsils. For either of these purposes a gargle in the proportion of five grains of acetate of lead, dissolved in three or four ounces of water or mucilage, will be found useful. Dr. Wood, in his valuable work on Pharmacology, says, "it should be remembered that this salt is incompatible with certain mucilages, particularly with those of slippery elm and quince seeds, with which it forms precipitates, and thus deprives the liquid of its mucilaginous property. But, with the mucilages of flaxseed and the pith of sassafras, it reacts but

slightly, not sufficiently to impair materially their demulcent properties or to interfere with its own efficiency."

A solution of subacetate of lead, officinal under the name of *liquor plumbi subacetatis*, commonly known as Goulard's Extract, is another of the preparations of lead used somewhat extensively as an external remedy. Its use is indicated in the same diseases as the acetate, its effects being nearly identical; the subacetate is, however, thought by some writers to be more powerful. In conjunction with its properties as an astringent, it possesses those ranking it among the antiphlogistics, anodynes and hæmostatics. It has received, by certain French writers, commendation as a remedy in the treatment of mercurial salivation, by whom it is used in the form of an exceedingly strong solution, a sixth or an eighth part being used in the fluid of which the mouth wash or gargle is composed. A dilute solution of subacetate of lead (*liquor plumbi subacetatis dilutis*, U. S.) is made, and is in general use under the name of lead water; being composed, according to the U. S. Pharmacopœia, of solution of subacetate of lead, *two fluid drachms*; distilled water, *one pint*. Its use is indicated in the treatment of inflammations induced by burns, blisters, sprains, &c; and like the solution of the subacetate is used only as a topical remedy.

There are several other preparations of lead used, however, principally as internal remedies, but as they are not of use in the treatment of any dental affections, we shall pass them over without special notice.

The next agent to which we shall direct attention, is the sulphate of iron, (*ferri sulphatis*, U. S.) commonly known as green vitriol. This salt contains one equivalent of sulphuric acid, one of protoxide of iron, and seven of water; it is usually of a bluish-green color, inodorous, but of a strong astringent taste. By many therapeutical writers this agent is treated under the head of the mineral tonics; but it is now used principally as an external astringent, either in the form of a powder, or in a strong solution. It has been used for the purpose of arresting passive hemorrhages from mucous surfaces and the nostrils; and as a wash for flabby ulcers that refuse to cicatrize. It has been employed in the treatment of cutaneous eruptions and ophthalmic diseases with considerable success. When used as a solution for the arrest of hemorrhages, or for indolent ulcers, it should contain from fifteen to twenty grains of the salt to the fluid ounce of water.

An astringent solution, of the sulphate of iron, recently introduced under the name of Monsul's salt, will call for a more extended notice. It was first used by M. Monsul, a surgeon in one of the military hospitals of Bourdeaux, and its virtues as a styptic were by him made public. It is inodorous, of a reddish brown color, and of a strong astringent taste. In the hands of the dentist this agent is found to be particularly useful

and efficient, and its styptic qualities are so powerful that he can control and arrest any hemorrhage from the dental tissues, unless the case is one where the blood is deficient in fibrine, constituting the hemorrhagic diathesis; and even in such cases no better styptic could be used. It possesses the valuable property of hastily producing a firm coagulum. For the treatment of bleeding from the nostrils, from the sockets after extraction of teeth, or from a leech-bite, a small pledget of cotton wet with the solution, and held on the bleeding surface, will usually in a few moments arrest the hemorrhage. We have also found it valuable in another direction, in filling approximal cavities; all operators know how liable we are to cause, by a slight slip of the instrument, bleeding from the gum. When such an accident occurs, and before the blood has time to ooze out and destroy the filling we touch the part with a small portion of the solution. In cases where the follicles in the gum, at the neck of the tooth, eliminate an inordinate secretion, tending, by its presence, to impair the adhesiveness of the gold, we use the solution previous to the introduction of the gold, and find it exceedingly useful. In the treatment of aphthous ulcers in the mouth, occasioned by irregularity of plates, bad fitting artificial work, or other mechanical or constitutional influences, we find nothing is of more, or indeed so efficient, as this solution; it being requisite only to touch the ulcer occasionally, and in the majority of cases two or three applications will be all that is necessary.

In a recent conversation with an eminent practitioner of this city, we were told that, being on one occasion called to arrest secondary hemorrhage in a case of hospital gangrene, at one of the United States Army Hospitals, he tried the dry salt, (a product of the solution when evaporated to dryness,) thickly sprinkled over the surface of the gangrenous part. The effect was not only to control the hemorrhage, but to arrest the gangrene, and out of many cases of the same disease treated by himself and others at the hospital, all (we believe) recovered; demonstrating the fact that it is capable of inducing powerful alterative effects on diseased surfaces.

Sulphate of zinc, (*zinci sulphas*, *U.S.*) like the sulphate of iron, is used as a tonic, and as an astringent. It is exceedingly useful as an external agent, as it possesses an alterative influence in connection with those above named. It induces healthy action on inflamed tissues, by diminishing the calibre of the circulatory vessels, thus arresting the flow of blood. In the treatment of diseased antrum from mucous engorgement, sulphate of zinc has long been used. Mr. Thomas Bell recommended the following formula as an injection in that disease:

R.—*Zinci sulphas*, gr. vj.;  
*Aquæ Rosa*, f ʒvj.—*Misc.*

Dr. Wood recommends sulphate of zinc very highly in the treatment of ulcers and *pseudo-membranous patches in the mouth and fauces*, and remarks that "wherever the surface of the ulcer is covered with a whitish exudation, whatever may be their duration or size, from the small superficial aphthous ulceration to the obstinate and destructive *cancerum oris*, the solution of sulphate of zinc will, according to my observation, effect a cure." The solution should be applied by means of a camel's-hair pencil, and of the strength of fifteen or twenty grains to the fluid ounce of water.

There are several other mineral agents noted for their astringent influences, but as they have other and more marked characteristics, they will be noticed under other heads.

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### MATTER AND ITS PROPERTIES.

(CONTINUED.)

BY T. L. BUCKINGHAM, D. D. S.

In the last number of the *TIMES* an article was published on "Matter and its Properties," the object of the present paper is to continue the subject. There were three properties mentioned, *gravitation*, *adhesion* and *cohesion*, all tending to draw the atoms together. There is another force opposed to these—*repulsion*, which tends to force the atoms apart. This repulsive force is supposed to be *heat*; we know nothing of the real nature of heat. There are two views of its nature, the corpuscular and the undulatory theory. According to the corpuscular theory, heat exists in all bodies in combination with their atoms, forcing them apart, flying off in all directions from hot, and is absorbed by cold bodies. There are many facts going to show that it has a separate existence, compression is one of the most common; whenever a body is compressed into a smaller bulk, heat is given out. If we take a piece of iron and hammer it, the atoms are driven closer together, and the heat is forced out; or, if we compress suddenly air in a syringe, a sufficient amount of heat is produced to set a piece of tinder on fire; in rubbing a match over a sand paper some of the composition is rubbed off, and being compressed between the match and the paper, a sufficient amount of latent heat is forced out to set fire to the rest of the composition on the end of the match. The flint and steel is another familiar illustration; when struck together, the small particles that fly off are so compressed as to become red hot. A very great number of illustrations might be given to confirm the theory that heat has a separate existence. But there are as many, if not more, going to show it is produced by motion, which is called the undulatory theory.

This theory is explained by supposing that all space is pervaded by a highly elastic fluid called *ether*. The molecules of a hot body set this

ether in motion, as the air is set in motion, when sound is produced. Friction appears to confirm this theory; any amount of heat may be produced by it. Count Rumford "made a borer to revolve in a cylinder of brass, partially bored, thirty-two times in a minute. The cylinder was enclosed in a box containing 18 pounds of water, the temperature was at first 60°, but rose in an hour to 170°, and in two hours and a half the water boiled." Sir Humphrey Davy, "by friction, extracted heat from two pieces of ice, and quickly melted them, in a room cooled below the freezing point, by rubbing them against each other."

"There are six sources from which heat is derived. 1. The sun and fixed stars. 2. The interior of the earth. 3. Electricity. 4. Chemical action. 5. Mechanical action. 6. Vital action."

From the sun is received more heat than from any other source. The sun is the largest body with which we are acquainted; some of the stars may be larger, but we have not yet been able to measure the distance they are from us, much less their size. The distance of the sun from us is 95,000,000 of miles, its diameter is about 888,000 miles, nearly 111 times that of the earth; it would, therefore, make 1,400,000 bodies as large as our earth. There have been two theories entertained in regard to the heat of the sun; one was that the sun is an intensely hot mass, and heat and light is thrown off, as it would be from any other hot body: the other is, that "heat is merely an *affection, or state of an æthereal fluid*, which occupies all space."

The quantity of heat received from the sun annually, it has been estimated, would melt a crust of ice on the earth's surface 101 feet thick. There is about four-fifths as much heat received from the fixed stars; so that, although the sun is the great source of heat, the stars give us nearly as much.

The highest natural temperature recorded, is by Dr. Smith, near the site of the ancient Ninevah, where the thermometer rose to 146° F. The lowest temperature observed by Dr. Kane was—69.3° F. Captain Black has recorded it as low as —70° F.: here is a range of temperature of 206°. We often have a difference in this latitude of from 100 to 110 degrees. The heat from the sun is absorbed by the earth, but it does not penetrate more than from 50 to 100 feet below the surface; as we descend into the earth it becomes cooler, until we get to what is ("called the first stratum of invariable temperature,") as we descend below that, the temperature rises about one degree for every fifty feet; observations have been made in mines and artesian wells to the depth of 2,200 feet, and this increase of temperature has been invariably found. If this ratio continues at the depth of two miles, water would be converted into steam; at four miles, tin would melt; at twenty-five miles, nearly all the metals would be

in a fluid state. Although there is supposed to be such intense heat in the interior of the earth, it is calculated it would not raise the temperature  $\frac{1}{8}$  of a degree at the surface, the crust of the earth being such a bad conductor.

Electricity produces heat, but in what manner the heat is produced we do not know, the greatest known heat is in the galvanic current.

Chemical action is a source of heat; scarcely any combination takes place between two elements without causing a change in the temperature. When strong sulphuric acid is poured into water, heat is evolved; when ice and salt are mixed together, the ice melts very rapidly, and the temperature falls, causing a degree of cold much below the temperature of the snow or salt before they were mixed.

Mechanical action produces heat by friction, compression and percussion. The amount of heat produced by friction, in Count Rumford's experiment, has already been given. Many other experiments might be given, to show that the friction of solid substances produces heat; but the fact is so well known, that it is not necessary to state them here. It was supposed, until recently, that the friction of fluids would not produce heat. Mr. J. P. Joule, of Manchester, England, has shown that heat can be produced by the friction of water and of oil, and has also determined the amount of mechanical power necessary to produce a given degree of heat. To record his experiments here, would take up more space than we can give in this article.

Compression usually causes heat; whenever a substance is reduced in volume, heat is given out. If we hammer a piece of cold iron, it becomes hot; fluids and gases also become hot by condensation. Percussion is a combination of friction and compression. Whenever a substance is struck hard enough to drive the atoms closer together, the friction and condensation cause heat.

Vital action causes heat both in animals and vegetables. It is supposed that the chemical combinations going on in organized beings produce most if not all the heat.

TO BE CONTINUED.

## QUACK ADVERTISEMENTS.

BY JNO. W. VANDEVORT, D. D. S.

The prevalence of quack advertisements, particularly in reference to the practice of dentistry, have, since the introduction of the vulcanite or corolite material, grown to an alarming extent. Scarcely a newspaper published throughout the country, but bears me out in the testimony. Select a journal where you will, one of the first things that meets the eye is some flaming advertisement, stating Dr. So and So will do such and such work, at greatly reduced prices, all operations being performed

without pain; followed by a long list of references more than likely imaginary, or copied from some city directory.

There are always a set of imposters, or would-be dentists, who have recourse to printer's ink (the devil of course has something to do with it) to bring themselves into notice; for if they depended upon merit, on which the true professional man solely relies, their hopes would never be realized; but, unfortunately for the people, their flaming advertisements inveigle persons who are not educated to a proper appreciation of dental operations until, alas!! too late. Now, if their pockets alone were the sufferers, there would not be the same cause of complaint; but, unfortunately for the poor victim, he or she may have received a permanent injury, perhaps a constitutional one, which may not at once be developed; but, nevertheless, will sooner or later appear, when possibly past all remedy.

If the public could only understand the difference between a good and bad operation in dentistry, they would certainly pay more attention to their teeth: they would at once see the value and importance of seeking the best operator, whose merit has gained him reputation, and on whom they can rely, and rest assured that what operations are performed are done in the most thorough and practical manner; and not the miserable *quack*, whose pockets are freely bled by the job-printer and sign-painter to make himself known, whose operations are not only a disgrace to himself, but to the science of dentistry.

There are a class of these self-styled Drs., who have never spent an hour of preparatory study to fit themselves for the noble profession of dentistry, who spread out their signs and herald forth their advertisements, as for example:

“DR. ———, DENTIST,

“Has fitted up his rooms, especially adapted to the manufacture of artificial teeth, or vulcanized rubber plates.

“While we are prepared to do all work pertaining to our profession, both in repairing diseased teeth and making *new ones*, we would call the especial attention of those requiring *new teeth*, to the superiority of vulcanized rubber over silver, gold, or platinum. This is conceded both by the dentist and by those who wear it. It has been in use for nearly ten years, and we have yet to see the first dentist abandon its use, or the first one who used a plate of it that does not prefer it to gold.

#### “LIST OF PRICES.

“Teeth extracted without pain by a safe and pleasant process for 25 cents, and a number at a lower rate.

“Extracting gratis, where artificial teeth are to be inserted. Cleaning teeth, 25 cents; gold fillings, 50 cents; other fillings, 25 cents.

“Artificial teeth inserted at the following prices:

“Full sets on vulcanite, \$8, (with beautiful gums.) Full sets on gold, \$30; full sets on silver, \$12. Partial sets at the same reduced rates.



"All operations warranted for five years, and the very best of references given if required. Responsible persons have the privilege of testing work and knowing that it will please them, before paying for it.

"Call and examine my specimens, which are superior in quality, style and finish, to any made in the country.

"N. B. Boarding provided free of charge to those from a distance while having their work done."

It will be unnecessary to make any comments on the above, as it speaks for itself; but we may say it is a fair specimen of what may be seen in almost every paper published throughout the country. Now this modern system of advertising undoubtedly has a very derogatory effect on the profession of dentistry; and it being true, is it not a duty that all true men, not only in the dental, but in the medical profession, owe to society which has entrusted its health and happiness to their care to protect, and wage incessant war against these would-be dentists, or, to use a better word, vampires of society?

PITTSBURG, PA.

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### NEW BOOKS.

BY C. N. PEIRCE, D. D. S.

We have received from LINDSEY & BLAKISTON the advanced sheets of the eighth revised and enlarged edition of "Harris' Principles and Practice of Dental Surgery." We are pleased to find added to the work an interesting and valuable chapter on the "Application of Vulcanized Rubber to Dental Purposes," from the pen of Professor AUSTEN, of Baltimore. Also, an article from Dr. W. H. DWINELLE, of New York city, giving a full, complete and highly interesting account of Dr. Norman W. Kingsley's method of preparing artificial palate, velum and uvula of elastic vulcanized rubber. Professor Harris' work has long been considered indispensable to the dentists' library; but, by the addition of so much interesting and valuable matter, the forthcoming edition is made doubly so, and to the publishers the thanks of the profession are due for their studied efforts to increase its value as a text book. The work, as it is presented to the dental public, will contain some two hundred and sixty illustrations, which, beside adding much to its beauty, make it more efficient as a source of instruction. Of Dr. KINGSLEY, for his untiring efforts in this specialty of our profession, uniting, as he has done, experience, inventive genius and perseverance, too much could not be said; but we forbear, and invite all to purchase the book and read the article in question; considering well the facts therein stated, let them prove a stepping-stone to the high position our profession is destined to attain. We learn that a new edition of Harris' Dictionary is also in progress, and will soon be ready for the student.

## IMMOBILITY OF THE JAW.

BY C. N. PEIRCE, D. D. S.

Some weeks since, a young man called at my office complaining of slight immobility of jaw, with his face somewhat distorted by the contraction of the muscles on the right side. We examined his mouth, and found the right inferior wisdom tooth partially developed, with a dense elastic tissue lying over the buccal and a large part of the masticating surface, with slight inflammation extending into the cheek. With a sharp lance the tissue was removed from the masticating surface, and the patient directed to use an astringent wash, and bathe externally with tincture of arnica. The next day he was much improved, and at the expiration of forty-eight hours the inconvenience was entirely removed. We mention this case to show the necessity, in disturbances of the kind, of looking for a local cause before attributing it to a constitutional disorder. The young man had before, at the suggestion of a friend, consulted a practicing physician, by whom the trouble was attributed to the liver, and some agent prescribed for the purpose of stimulating that organ, which advice was not followed, and had it been, would have done no good while the cause remained.

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## MINERAL AND OSSEOUS PHOSPHATES.

BY J. L. PEIRCE, M. D.

On perusing the interesting remarks on "Phosphates in Dental Hygiene," by Edward Parrish, published in the first number of the DENTAL TIMES, I felt a desire to add a few words thereto, which may prevent disappointment in the use of that valuable class of medicines.

In former years physicians frequently found that their prescriptions containing phosphate of lime were inert, while at other times all of the efficacy expected from them was fully realized. The circumstance was considered "mysterious," as long as the cause was unknown. At length the mystery was partially removed, by the discovery that although the chemical composition of the *mineral* phosphate of lime and of the *osseous* phosphate of lime appeared to be identical, yet their effects upon the constitution, when internally administered, were very dissimilar; the *mineral* being *inert*, and the *bony efficacious*. The question naturally arises, why this difference? The only answer we can suggest is the probability that the osseous phosphates are soluble in the digestive fluids, while the mineral phosphates are not at all, or but slightly so.

Another idea may be here suggested, viz., between the mineral phosphates and the human system there is but little assimilation. The more any article passes from the lower to the higher organizations, the more capable it becomes of assimilating with the higher. This may be illus-

trated by the carbonate of lime. That article, in the form of oyster shells, when burnt, makes a better fertilizer for the land than when prepared from the mineral carbonate of lime, and our Pharmacoposia, for the same reason, direct medicines to be prepared from the oyster shells, instead of from the mineral. Again, manure made from clover is more efficacious than the same article made from weeds and vegetables indiscriminately ; hence, in some portions of our country, the farmers arrange the succession of their crops so that every fourth or fifth year they, instead of cutting and making hay from their clover crop, find it more advantageous to plow it deeply under the soil, and let the land rest during that year. Many farmers also have learned to make their composts of such articles as contain the chemical constituents of the crops they expect to raise the succeeding year, upon the land they design manuring with the said compost. We therefore perceive that the doctrine of assimilation is becoming more investigated and better understood in vegetable as well as animal life, and its influence upon the animal economy must claim the attention of the medical and dental professions.

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### MAXILLARY PERIOSTITIS.

BY E. HARVEY, M. D.

Having frequently tested the remedy recommended in the following extract from Watson's Lectures on Practice, and always with the most satisfactory results, I think it may not be amiss to call the attention of dental surgeons to it. I cannot agree, however, with that part of the statement which says, "If the pain does not yield after four doses, you may cease to expect any benefit from it." In one case which had existed for two weeks, I gave the remedy for four days before the disease yielded, which it then did quite rapidly and completely.

"There is a kind of face-ache which cannot properly be reckoned as neuralgia, for it does not occur in short, stabbing paroxysms, nor is the pain acute enough to entitle it to the name of *tic douloureux* ; but which is very common, very distressing, and, under ordinary treatment, sometimes very intractable. It is called by some a rheumatic pain ; it occupies the lower part of the face, the jaw principally, and the patient cannot tell you exactly the whereabouts it is most intense. It is often thought to proceed from toothache, and bad or suspected teeth are extracted, but with no good effect. Now I allude to this, for the sake of saying that some years ago I was instructed by an experienced old apothecary that this face-ache might be almost always and speedily cured by the muriate of ammonia—a medicine that we seldom give internally here, (England,) although it is so much used in Germany. And I have again and again

availed myself of this hint, and been much thanked by my patients for the good I did them with this muriate of ammonia. It does not *always* succeed, but it *often* does. It should be given in half-drachm doses, dissolved in water, or in almost any vehicle, three or four times a day. If the pain does not yield after four doses, you may cease to expect any benefit from it. In two or three instances of a similar kind that I have recently had to treat, I have found the iodide of potassium, in doses of five or six grains, work a speedy and permanent cure. This induces me to suppose that the pain in some of these cases is periosteal. I so judge from the ascertained efficacy of the iodide in other periosteal affections attended by pain."

CHESTER, PA.

## PROCEEDINGS OF THE AMERICAN DENTAL ASSOCIATION AND CONVENTION.

BY C. N. PEIRCE, D. D. S.

A report of the proceedings of these two gatherings, we deem well worthy of a perusal, and should take great pleasure in giving place to them in our Journal, were it not that our space is so limited that we should not have room to do justice to either; shall therefore have to content ourselves with but a meagre synopsis, including organization of meetings, subjects discussed, appointment of committees, &c., and refer our readers to the monthly journals for a more extended report, which we think would well repay the time spent in reading.

The American Dental Association met at the Assembly Buildings, in Philadelphia, at 12 o'clock, on Tuesday, July 28th, 1863, and was organized by Dr. Geo. Watt acting as President, and Dr. J. Taft as Secretary.

The Committee of Arrangements then received and examined the credentials of the delegates, after which they paid their dues, signed the Constitution, and became members of the Association.

The following Associations were represented by their respective delegates:

Michigan State Dental Association .....	3 Delegates.
Brooklyn Dental Association .....	7 "
Pittsburg Dental Association, Pa.....	2 "
Central New York Dental Association.....	5 "
Northern Ohio Dental Association.....	3 "
Cincinnati Dental Association.....	2 "
Mississippi Valley Association .....	1 Delegate.
New York Society of Dental Surgeons.....	2 Delegates.
Pennsylvania Association of Dental Surgeons.....	4 "

Odontographic Society of Pennsylvania.....	6 Delegates.
Pennsylvania College of Dental Surgery.....	1 Delegate.
Philadelphia Dental College.....	1 “
Western Dental Society, Missouri.....	1 “
Permanent members present, 14.	

The election of officers being next in order, a special Committee, consisting of one representative from each delegation present, retired, to present nominees for the various offices. Adjourned to four o'clock, P. M.

On reassembling in the afternoon, the Nominating Committee presented the names of candidates, and, upon balloting, the following officers were unanimously elected to officiate during the ensuing term:

*President*—Dr. W. H. Allen, of New York City.

*First Vice-President*—Dr. J. H. McQuillen, of Philadelphia.

*Second Vice-President*—Dr. Wm. B. Hurd, of Brooklyn, N. Y.

*Recording Secretary*—Dr. J. Taft, of Cincinnati, Ohio.

*Corresponding Secretary*—Dr. C. R. Butler, of Cleveland, Ohio.

*Treasurer*—Dr. A. C. Hawes, of New York City.

The President elect, on being conducted to the chair by Drs. Spalding and McQuillen, made a few pertinent remarks.

Dr. Watt, on retiring from the chair, delivered an appropriate and interesting address.

On motion of Dr. Francis, of New York, a vote of thanks was tendered the retiring officers.

The minutes of the preceding annual meeting were read by the Secretary, and adopted.

The report of the Committee on Dental Physiology was then presented, and read by Dr. Atkinson. It was a very interesting paper, and elicited considerable discussion, participated in by many of the members present; profitably occupying all of the morning of the second day.

Afternoon session of the second day—Called to order at four o'clock.

The Report of the Publication Committee was presented, and received.

On motion of Dr. Spalding, the price of the three years' Transactions, combined, was fixed at three dollars.

The Committee on Mechanical Dentistry had no report; but in connection with this subject Dr. C. Palmer made some interesting remarks, and exhibited some models illustrating his method of preserving the contour of the face, by means of rubber. The subject called forth an expression from several members.

The report of the Committee on Dental Pathology and Surgery was presented by Dr. Atkinson. It contained much that was of value to the dental practitioner. In connection with it he gave the history of some very interesting cases of necrosis which he had treated in New York city.

In the discussion of this paper, which was participated in by a number of gentlemen, much ability was displayed, and an incentive given to this specialty which, we trust, will be productive of good results.

Upon motion, the regular order of business was suspended, for the purpose of selecting some place for the next annual gathering; whereupon Niagara Falls was unanimously chosen.

On resuming the order of business, the Nominating Committee made the following report, which was adopted:

*Committee of Arrangements*—Drs. S. B. Palmer, C. Harris, S. G. Martin.

*Committee on Publication*—Drs. J. Taft, W. A. Pease, C. W. Spalding, H. R. Smith, H. A. Smith.

*Committee on Prize Essays*—Drs. S. Dillingham, G. T. Barker, G. W. Ellis, A. C. Hawes, W. B. Hurd.

*Committee on Dental Physiology*—Drs. C. A. Kingsbury, J. H. McQuillen, C. N. Peirce.

*Committee on Dental Chemistry*—Drs. George Watt, T. L. Buckingham, H. A. Smith.

*Committee on Dental Pathology and Surgery*—Drs. W. H. Atkinson, J. F. Flagg, J. L. Suesserott, C. R. Butler, C. P. Fitch.

*Committee on Mechanical Dentistry*—Drs. Thos. Wardell, J. G. Cameron, A. W. Allen, S. G. Martin, E. M. Skinner.

*Committee on Dental Education*—Drs. J. H. McQuillen, J. Taft, H. R. Smith.

*Committee on Dental Literature*—Drs. C. P. Fitch, W. H. Allen, J. F. Johnston.

The report of the Committee on Dental Literature was read by Dr. McQuillen; that of the Committee on Dental Education by Dr. Ellis, and on the Formation of Local Societies, by Dr. Taft.

After which the following interesting papers were read, and well received by the Association:—On "Professional Education," by Dr. Flagg; on "Dental Education," from Dr. Latimer, read by Dr. Fitch; on "The Extraction of Teeth," by Dr. Ellis; on "Irregularity," by Dr. Allen; on "Exposed Pulp and Alveolar Abscess," from Dr. Hawes, read by Dr. Flagg; on "Institutes of Dental Science," by Dr. Atkinson.

The following resolution, offered by Dr. McQuillen, elicited considerable discussion, and was finally adopted:

*Resolved*, That a committee of five be appointed by this Association to confer with Surgeon-General Hammond relative to the appointment of dentists to the military hospitals of the United States, and also to secure, if possible, prompt and successful action on the part of Congress, by

having petitions prepared, signed, and sent to that body from all parts of the country in favor of the measure.

The Chair appointed the following gentlemen upon the committee, Drs. McQuillen, Spalding, Taft, Fitch and Wadsworth.

Dr. Palmer read a very interesting paper which, with those previously read, was referred to the Publication Committee; he also exhibited some beautiful instruments of his own manufacture, intended for the preparation and filling of fangs.

The Treasurer's report was presented, showing a balance in his hands after defraying all the expenses of the session. Other business of minor importance having been transacted, the President, Dr. Allen, made a few appropriate remarks, after which the American Dental Association closed its proceedings on the evening of the fourth day's session, to meet again at Niagara Falls, on Tuesday, July 26th, 1864.

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#### THE AMERICAN DENTAL CONVENTION.

The American Dental Convention met at White's Hall, Saratoga Springs, New York, on Tuesday, August 4th, 1863, and was organized by Dr. W. B. Roberts acting as President pro tem. Drs. Buckingham and Robins reported the sum of one dollar as the individual assessment necessary for the creation of a fund sufficient to defray the expenses of the session. Gentlemen present from the following States paid the required amount, signed the constitution, and became members of the Convention: New York, 54; Massachusetts, 11; Connecticut, 9; Pennsylvania, 7; Ohio, 7; Vermont, 5; New Hampshire, 2; New Jersey, 2; Michigan, 2; Delaware 1; Rhode Island, 1; Wisconsin, 1.

The Executive Committee appointed in 1863, reported the following subjects for discussion, which were adopted:

- I. Causes influencing an abnormal development of the teeth.
- II. Treatment of dental irregularities, and appliances for the same.
- III. 1. Filling teeth. 2. Filling temporary teeth. 3. Best material for the same.
- IV. Diseases of the antrum, and treatment.
- V. Treatment of cleft palate.
- VI. Alveolar abscess.
- VII. Mechanical dentistry.
- VIII. Miscellaneous business.

W. H. DWINELLE, W. A. PEASE, W. D. STONE, D. W. PERKINS, T. L. BUCKINGHAM, *Committee.*

The minutes of the preceding session were then read by the Secretary, Dr. Searle, and, upon motion, adopted. The reports of officers and com-

mittees were declared in order. The Treasurer then made the following statement:

Receipts of last year.....	\$119 77
Disbursements.....	57 08
Balance.....	<u>\$62 69</u>

Upon motion of Dr. Rogers, Mr. F. H. Norton was appointed to furnish the Saratoga press with a daily account of its proceedings, at an expense not exceeding fifteen dollars.

After considerable discussion, the Convention, upon motion of Dr. Whitney, amended by Dr. Atkinson, decided to hold two daily sessions, from 9, A. M., to 1½, P. M., and from 4 to 6, P. M.

The election of officers for the ensuing year being next in order, the Chair appointed as tellers Drs. Buckingham and Kingsley. The following gentlemen were then, upon separate ballot, unanimously elected to serve the Convention.

*President*—Dr. J. Taft, Cincinnati, Ohio. *Vice-President*—Dr. W. W. Sheffield, New London, Conn. *Corresponding Secretary*—Dr. W. H. Atkinson, New York City. *Recording Secretary*—Dr. C. N. Peirce, Philadelphia, Pa. *Treasurer*—Dr. A. C. Hawes, New York City.

The Convention then adjourned to meet at 4 o'clock, P. M.

The meeting was called to order at 4 o'clock, when a letter was read from Dr. Westcott, the retiring President; he regretted his inability to be present, and spoke of the importance of associated effort in contributing to the advancement of dental science. Essays being next in order, Dr. Sylvester read a very interesting paper upon "Causes Influencing an Abnormal Development of the Teeth." The subject was treated under the following heads:—1. Parental influence. 2. Gestatory influence. 3. Improper diet. 4. Impure air. 5. Want of exercise. It elicited considerable discussion, in which many members participated. Adjourned.

The meeting was called to order on the morning of the second day by the Vice-President, Dr. Sheffield. The minutes of the previous meeting were read and adopted, when the following resolution, offered by Dr. W. B. Roberts, was voted upon, and carried.

*Resolved*, That the Chair appoint a committee of five to make proper arrangements for observing the day of Thanksgiving appointed by the President of the United States.

Drs. Roberts, Rogers, Kingsley, Watt and Atkinson, were such committee.

The report of the Committee on the Introduction of Dentists into the Army, was made by Dr. Atkinson, when Dr. Buckingham moved the



reappointment of a committee on this subject. The Chair appointed as that committee Drs. S. S. White, B. T. Whitney and Geo. Watt.

The "Treatment of Irregularities, and Appliances for the Same," was declared the subject in order for discussion, when Dr. Kingsley, of New York, spoke of the unprofitable waste of time, labor and expense, in the use of any complicated apparatus, giving and illustrating his method by diagrams on the blackboard. He was followed by a number of gentlemen, all of whom gave definite ideas of their method.

Afternoon session of the second day. Called to order at 4 o'clock, when Dr. Wood read a paper on "Fusible Metal Fillings;" he also exhibited his instruments, and demonstrated the method of manipulating his plastic filling; the subject called forth remarks from a number of gentlemen, occupying a large part of the session.

Morning session of the third day. The President, Dr. Taft, in the chair. In accordance with a resolution adopted the previous day, the early part of the session was devoted to exercises consistent with the Proclamation of the President of the United States; they were highly interesting and filled with a spirit of pure patriotism, and a desire that our present unhappy National condition might be brought to a speedy termination, on the sure foundation of justice to *all men*.

The regular order of business was resumed at 10½ o'clock, when the minutes of the previous meeting were read and approved.

The President announced the following gentlemen as constituting the Executive Committee for the ensuing year: Drs. L. W. Rogers, A. W. Kingsley, J. A. Watling, A. Hill and H. A. Smith.

The consideration of "Cleft Palate" was then declared the next order of business. The discussion was opened by Dr. Atkinson, who said the causes might be either dynamical, chemical or mechanical. He spoke favorably of the surgical operation as a means of correcting it. Dr. N. W. Kingsley was the next speaker; he explained the difference between voice and speech—the former being natural, the latter acquired: and spoke at length on the advantages of elastic vulcanized rubber for artificial palate and velum, illustrating his remarks by the exhibition of several beautiful models, duplicates of those placed in the mouth. He was followed by others, the subject occupying the Convention until near the hour of adjournment.

The following resolution, offered by Dr. Hawes, and amended by Dr. O. E. Hill, was adopted:

*Resolved*, That a vote of thanks be tendered to Dr. Kingsley, for the very interesting and valuable description of his method of treating cleft palate, and that to him is due the honor of first making a perfectly practical artificial velum.

Afternoon session of the third day. Called to order at four o'clock.

Dr. C. Palmer gave an interesting description of the manner of using his instrument for removing pulps and filling fangs.

Next in order were the "Diseases of the Antrum and Treatment." The discussion was participated in by Dr. Atkinson and others, and was interesting and instructive.

Nitrous Oxide Gas was, upon motion, taken up for consideration. Drs. J. Allen, Searle, S. S. White and others participated in the discussion:

Dr. W. B. Roberts offered the following, which was carried with but little discussion:

*Whereas*, This Association, having for its object the elevation and advancement of our science, desire on all occasions to recognize, endorse and to give encouragement to those of our number who contribute most largely to the progress and perfection of our noble art; *and whereas*, Dr. Norman W. Kingsley has this day presented and demonstrated to this Convention his peculiar method of restoring artificially the lost palate and velum, in a manner so clear and comprehensive as to entitle him to a substantial testimonial from this Convention; therefore,

*Resolved*, That this Convention present to Dr. Kingsley a gold medal, as an expression of their high appreciation of his valuable contribution to our profession.

*Resolved*, That a committee of five be appointed by the chair to carry out the object of this resolution, with power to draw upon the Treasurer for that purpose for an amount not exceeding fifty dollars.

The following gentlemen were announced by the President as a committee to carry out the above resolutions:—Drs. W. B. Roberts, A. C. Hawes, J. Allen, W. H. Atkinson and W. H. Dwinelle.

Morning session of the fourth day. Called to order at 9 o'clock. The minutes of previous meeting were read and adopted.

The next subject for discussion was "Alveolar Abscess." Drs. Atkinson, Dwinelle, and others, spoke at length.

"Mechanical Dentistry" being the next order of business, the discussion upon it was participated in by many members, and much interest manifested.

Under the head of miscellaneous business, Dr. Atkinson read two papers, one upon "Anomalous Cases," the other upon "Causes Retarding Dental Progress."

The place for holding the next Convention was fixed, in one of the earlier sessions, at Philadelphia, but, upon motion, was reconsidered, and after many efforts and much discussion, *Detroit* was selected, where it will reassemble on Tuesday, August 2d, 1864.

The President then delivered a very interesting and instructive address, after which the Convention *adjourned*.

**ANNOUNCEMENT**  
OF  
**PENNSYLVANIA COLLEGE OF DENTAL SURGERY.**  
**THE EIGHTH ANNUAL SESSION 1863-64.**

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**TRUSTEES.**

HENRY C. CAREY, <b>PRESIDENT</b> , W. L. ATLEE, M. D., DANIEL NEALL, D. D. S., ELLESLIE WALLACE, M. D., BENJAMIN MALONE, M. D., W. W. FOCHE, D. D. S.,	GEORGE TRUMAN, M. D., S. DILLINGHAM, D. D. S., G. R. MOREHOUSE, M. D., THOMAS WOOD, J. R. MCCURDY, CHARLES HAMILTON, <b>Sec'y.</b>
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**FACULTY.**

J. D. WHITE, D. D. S.,  
Emeritus Professor.

T. L. BUCKINGHAM, D. D. S.,  
Professor of Chemistry and Metallurgy.

C. N. PEIRCE, D. D. S.,  
Professor of Dental Physiology and Operative Dentistry.

E. WILDMAN, D. D. S.,  
Professor of Mechanical Dentistry.

G. T. BARKER, D. D. S.,  
Professor of Principles of Dental Surgery and Therapeutics.

W. S. FORBES, D. D. S.,  
Professor of Anatomy and Physiology.

JAMES TRUMAN, D. D. S.,  
Demonstrator of Operative Dentistry.

E. N. BAILEY, D. D. S.,  
Demonstrator of Mechanical Dentistry.

The regular course will commence on the first Monday of November, and continue until the first of March ensuing.

During October the Laboratory will be open, and a Clinical Lecture delivered every Saturday, by one of the Professors, at 3 o'clock, P. M.

The most ample facilities are furnished for a thorough course of practical instruction.

Tickets for the Course, Demonstrators' Ticket included, \$100. Matriculation Fee, \$5. Diploma Fee, \$30.

For further information, address

C. N. PEIRCE, **DEAN**,  
501 North Seventh Street, Philadelphia.

## PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Eighth Annual Session, 1863-1864.

The eighth annual session of the Pennsylvania College of Dental Surgery will commence on the first Monday of November, and continue until the first of March. Preliminary lectures will, however, be delivered each day during the latter half of the month of October, commencing on Monday, the 19th inst. The Dispensary and Laboratory of the College will also be open from that time, where ample opportunities will be afforded for the prosecution of the practical part of the profession under the daily supervision of the Demonstrators, who are gentlemen of known integrity and thorough capability. During October, as well as the entire session, a clinical lecture will be delivered, and operations performed by one of the Professors every Saturday afternoon.

The course is so arranged that fifteen lectures are delivered each week, on the various branches taught in the school. A synopsis of the manner in which each department is treated will be found under the head of the different chairs.

These lectures occupy about the average time of three hours each day. In addition, four hours are daily spent by the student in actual practice. With this object in view, the operating rooms are furnished with twenty chairs, so arranged as to command the best light, and all the appliances necessary for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate.

Each student is required to provide his own instruments, (except those for extracting,) and to operate with them. He is expected to keep them in perfect order, and for that purpose is provided with a table in which they can be locked up when not in use. As the operations performed at the College are entirely gratuitous, a superabundance of patients invariably present themselves.

In the mechanical department every process known in the profession, which has any value to the mechanical dentist, is fully taught; and receipts of valuable compounds are freely imparted. All the conveniences are at hand in the Laboratory for the preparation of metals, manufacture of teeth, (single and in blocks,) mounting, etc.; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression to the thorough construction of the denture, and proper adjustment of it in the mouth of the patient.

In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of Dentistry, the celebrated hospitals and clinics of the city constantly enable the student to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Blockley Hospital, in particular, one of the largest eleemosynary establishments in the world, are open to Medical and Dental students, free of charge. The staff of this institution is composed of some of the most eminent physicians and surgeons of Philadelphia.

## COURSE OF LECTURES.

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### CHEMISTRY AND METALLURGY.

The course of instruction from this chair will commence with the consideration of the imponderable substances.

The laws that govern the imponderable bodies will next claim attention, with some notice of symbols or chemical notations. Individual elements, and the compounds resulting from their combinations, will then be considered. Organic chemistry will receive its full share of attention.

The course will be illustrated by diagrams and such experiments as can be performed before the class.

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### DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.

The lectures in this department will embrace the Physiological Anatomy of the teeth, general and microscopical, in addition to a minute and careful description of the various operations performed by the dental practitioner.

The microscope, models, and diagrams, will be employed in illustration.

At the Clinic the incumbent of this chair will also demonstrate before the class the various operations described in his course of lectures.

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### MECHANICAL DENTISTRY.

The instruction from this chair will embrace the entire range of manipulations legitimately connected with the laboratory, arranged in two divisions—Mechanical Dentistry proper, and that to which has been applied the appellation of the Plastic department.

I. *Mechanical dentistry proper* will include everything appertaining to the construction of dental substitutes, passing through the different stages of preparation, from taking the impression, to the completion and proper adjustment of the case in the mouth, conjointly with features, expression of countenance, enunciation, etc. It will likewise embrace the metallurgic treatment of the various metals employed, the preparation of plate and wire, the alloying of gold, together with the *alloys* used, as well as those designated as solders.

II. This division will comprise all that appropriately belongs to the manufacture of porcelain or mineral teeth—single teeth, block work, continuous gum-work, vulcanite, etc. The materials, their preparation, compounds and uses, will be specially regarded.

All new inventions, modifications, and improvements, in this branch of the art, will in place receive due attention and investigation.

## PRINCIPLES OF DENTAL SURGERY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist.

They will also include a careful examination of therapeutic agents and their general application. Their indications in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated, and also the general hygienic rules and principles which come within the province of the practitioner.

## ANATOMY AND PHYSIOLOGY.

The instruction in this department will embrace a plain and comprehensive view of the structure and functions of the Human Economy. The valuable anatomical preparations of the incumbent of this chair, (consisting of Papier Mache manikins, models in wood, drawings, wet and dry preparations,) will enable him to fully illustrate his course. With the same object, vivisections on the lower animals will also be employed.

The special relations of this branch to the wants of the dentist will be kept steadily in view, and such descriptions of the natural history, microscopical structure, connections, &c., of the teeth, as their importance demands, will be given.

The great facilities for the study of practical anatomy, to be found in the city of Philadelphia, obviate the necessity of providing a dissecting-

room in the College. For the usual fee of \$10, the student can have access to one of several well-ordered and well-supplied dissecting-rooms.

### CONDITIONS OF GRADUATION.

The candidate must be twenty-one years of age, and of good moral character. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College: five years' practice, inclusive of the term of pupillage, will also be considered equivalent to the first course of lectures. The candidate for graduation must prepare and defend a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done, at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall receive the degree of Doctor of Dental Surgery.

### FEES.

Fees for the course, (Demonstrators' tickets included,) - -	\$100
Matriculation, (paid but once,) - - - - -	5
Diploma fee, - - - - -	30

### TEXT BOOKS.

Wilson's, or Leidy's Sharpy and Quain's Anatomy—Carpenter's Physiology, or Dunglison's Human Physiology—United States Dispensatory, (Neil and Smith's Compendium)—Mitchell's Materia Medica—Fownes' Elements of Chemistry—C. J. B. Williams' Principles of Medicine—Wood's Practice—Erichsen's System of Surgery—Tomes' Dental Physiology and Surgery—Harris' Principles and Practice—Taft's Operative Dentistry—Richardson's Mechanical Dentistry, or other standard works on the subject.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

DEMONSTRATORS' REPORT.

Session 1862-63.

OPERATIVE DEPARTMENT.

772 patients, for whom the following operations were performed :

FILLINGS.	
Front Incisors, . . . . .	206
Lat. Incisors, . . . . .	110
Cuspidati, . . . . .	57
Bicuspsids, . . . . .	207
Molars, . . . . .	508
Treatment and Filling Pulp Cavities, . . . . .	115
Temporary Fillings, . . . . .	12
Total, . . . . .	1215

*Of the above there were of*

Gold, . . . . .	634
Tin, . . . . .	566
Hill's Stopping, . . . . .	12
Amalgam, . . . . .	3

*Of the operations there were*

Superficial Caries Removed, . . . . .	11
Removal of Salivary Calculi, . . . . .	46
Pivot Teeth Inserted, . . . . .	5
Treatment of Inflammation of the Gums, . . . . .	3
“ “ “ Pituitary Membrane of the Antrum, . . . . .	1
“ Alveolar Abscess, . . . . .	23
“ for Irregularities, . . . . .	10
“ “ Partial Necrosis, . . . . .	5
Extraction of Supernumerary Teeth, . . . . .	6
“ Teeth and Roots, . . . . .	2061
Total, . . . . .	3386

JAMES TRUMAN, DEMONSTRATOR.

MECHANICAL DEPARTMENT.

95 patients, for whom the following operations were performed :

Whole Sets of Teeth, . . . . .	10
Full Upper Sets, . . . . .	48
“ Lower “ . . . . .	3
“ Upper “ Blocks, . . . . .	1
“ “ Continuous Gum Sets, . . . . .	4
Partial Upper Sets, . . . . .	43
“ Lower “ . . . . .	7
Obturator, . . . . .	2
Whole number of Teeth Mounted, . . . . .	1242

EDWARD N. BAILEY, DEMONSTRATOR.



THE DENTAL TIMES.

GRADUATES, 1862-63.

JOHN B. YOUNG,	N. P.,	Sensitive Dentine.
CHARLES DEGNER,	Germany,	Diseases of the Antrum.
JOSE RAFAEL BRUNET,	Cuba,	Circulation.
JAMES H. HATCH,	California,	Caries and its Treatment.
MAJIN PERALTO,	Puerto Rico,	Mechanical Dentistry.
THOMAS A. ANDERTON,	Pa.,	The Teeth.
JOHN W. VANDEVORT,	Pa.,	Our Profession.
JAMES BROWN,	N. Y.,	The Extraction of Teeth.
CHARLES L. ASPINWALL,	Mass.,	The Development, Articulation, &c , of Second Dentition.
SILAS GRIFFITH,	Pa.,	Relative Anatomy of the Teeth.
L. BUFFETT,	Ohio,	Periostitis.
JULES MARCELIN,	N. Y.,	Alveolar Odonto Periostitis.
WM. MITCHELL,	Ohio,	Hemorrhage.
C. M. WILKIE,	N. Y.,	The Blood, its Various Properties and Relations.
J. I. SINGLEY,	Del.,	The Mode of Obtaining Impressions of the Superior and Inferior Maxilla.
A. S. MILLER,	Pa.,	Dies.
ROBT. H. ANTIS,	N. Y.,	The Physiological Anatomy of the Teeth.
ELBERT TODD,	N. Y.,	First Dentition.
GEORGE C. LOAR,	Illinois,	Dental Caries and its Treatment.
C. H. EUTUJIAN,	Turkey,	Caries of the Teeth.

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**NEALL, McCURDY & NEALL,**

SUCCESSORS TO

**SAMUEL W. NEALL,**

**MANUFACTURERS OF PORCELAIN TEETH**

AND

**DENTISTS' MATERIALS.**

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**DENTAL DEPT.**

**534 Arch St., south-east corner of Sixth,**

**PHILADELPHIA, PENNA.**

# THE DENTAL TIMES.

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VOL. I.

PHILADELPHIA, JANUARY, 1864.

No. 3.

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## EXTRACTING TEETH.

BY C. N. PEIRCE, D. D. S.

There is probably no operation performed by the dentist that is attended with more fear on the part of the patient, and greater liability to accident, either trifling or serious, than that of extracting teeth. Nor is there any one branch of our profession, where in the last few years the improvements have been greater, and the chances of failure so much reduced, as in this speciality. A few suggestions may, however, enable some one to operate with more confidence, and spare some unfortunate a few moments' suffering.

In performing an operation, whether it be mechanical or surgical, there is no one thing that contributes more to success than a thorough appreciation of the end in view, and the means essential to accomplish it. For instance, the removal of a particular tooth has been decided upon; now, the conditions that should be fulfilled are, "the whole of the offending organ should be removed, it should be done with as little injury as possible to the surrounding tissue, and the patient spared all unnecessary pain." To do this there are several things essential: the operator should be familiar with not only the number of fangs, but the relative positions they assume in the alveolus, as well as the density of the structure surrounding them. Though definite and positive knowledge we have not, yet much can be learned by experience and observation; and to be familiar with and constantly bear in mind the probable number, shape and bifurcation of the fangs, will do much to prevent accident, and render the operation less painful.

In extracting the incisors with their straight and cone-shaped fangs, the rotary motion, if persistent, will invariably be sufficient to break up their membranous connection with the alveolus; but not so readily are the cuspidati removed; for often toward the apex of the fang we find them curved posteriorly, which renders the rotary motion inefficient, and makes it necessary to apply the force so as to dislodge the curve from its well-adapted alveolus, which is readily done by pressing the crown backward

or towards the posterior part of the mouth. The superior bicuspid, with their fangs compressed, and those of the anterior ones invariably bifurcating toward their apex, require the in and out motion in addition to the slight rotary.

The fangs of the inferior bicuspid in shape nearer resemble those of the incisors, and in extracting, if the forceps are pushed well down upon or below the neck, they are removed with more ease than the superior. The superior molars with their three fangs, two buccal and one palatine, admit of but little or no rotary motion, but require a persistent pressure inward and outward. The inferior molars, having generally two fangs, the anterior and posterior, like the superior, frequently require the force alternately, toward the buccal and lingual surfaces, though generally a severe and persistent external force is best adapted for their removal. Their fangs, like those of their antagonist, often converge and clasp firmly a portion of the alveolus, which, if the fangs do not break, is invariably broken off and brought out with the tooth. The third molars, or *dentes sapientiæ*, are so unreliable in the number and shape of their fangs, that it is unsafe to predict their complete or speedy removal; but the force applied toward the external or buccal surface is in the majority of cases all that is necessary, though in many the curvature of the fang posteriorly is so great, that the crown requires to be thrown in the same direction, in order to break its connection with the alveolus. There is one point that might with advantage be borne in mind, it is that where the fangs are curved, whether it be that of a canine, bicuspid or molar tooth, the direction is generally posteriorly, and by forcing the crown in the same direction, the tooth is released.

There are other conditions of the teeth and surrounding tissue worthy of note, which may assist in forming a correct judgment with reference to the force essential to effect their removal. A molar tooth, with high crown and comparatively smooth and large masticating surface, with the neck of much less diameter, invariably indicates long and bifurcating fangs. So, also, does the short crown with prominent cones or cusps, and parallel sides denote the opposite; likewise the even gum, free from the prominences designating the position of the fangs, indicates thick, dense alveolus. These, and other conditions, which careful observation may teach, all play an important part in retarding or facilitating the operation.

The one thing to be impressed upon the novice in the art, is to avail himself of all the advantages at his command, and then let his mind comprehend and his eye follow every movement of the instrument, which should be made with decision and care, avoiding the appearance of nervousness or want of confidence in his own ability.

In selecting the instrument, such an one as would most thoroughly clasp

the tooth at its neck and apply the force on a line with its axis, is desirable. The great advantage in having the beaks of the forceps sufficiently wide to clasp and accurately fit a large portion of the tooth, is, that the pressure being diffused, is less liable to fracture or crush it. Much is gained from dividing the operation into different stages—not that any space of time should elapse between, but that the object of each may be fulfilled before another is attempted. For instance, the first in the operation of extracting is to thoroughly seize the tooth, pressing the forceps well towards the apex of the fang, until they come in contact with, or pass under or over the edge of the alveolus. Next, is to so apply the force as to break the connection it holds with the alveolus, this varying with the number and shape of the fangs, but must be persevered in until the object is accomplished, after which the tooth is removed by lifting from the socket. To attempt the latter without completing the former, would be worse than useless.

In extracting a number of approximal teeth, there is great advantage in availing one's self of the alveolar socket through which to seize the tooth adjoining. If the cuspidati or the first bicuspid should have but recently lost the teeth on each side, there is no better means of removing them than by letting the beaks of the forceps occupy the adjacent alveolar socket, then with a moderate force pressing the crown or root towards the posterior part of the mouth, the connection is easily broken and the tooth removed.

In the extraction of fangs where the crowns have been lost for some time, failure is often the result of neglecting to push the beaks of the forceps near to the apex. In the roots of the anterior teeth we have no hesitation in the free use of the lance, by making an incision the full length of the fang on the labial surface, and then with narrow beak forceps, pass them up external to the alveolus, crushing it and removing it with the fang. This we deem the only reliable means of getting out many of those roots, and much better than by the use of the screw, or partly seizing and crushing, until the patient is worn out by the operation being so prolonged. The questions invariably asked by the patient before submitting to what seems to be a difficult operation, are, "Will it break? Will you have to try more than once? or, How long will it take?" Almost any one can be prevailed upon to submit to a single effort, but when it is to be repeated two, three or four times, the nervous system is taxed and the patient loses self-control.

In the roots of molar teeth, where from any cause they offer considerable resistance, it is well with a pair of forceps similar to *Physic's*, to break their connection with each other—in doing so, they are thrown apart and slightly loosened, then with a pair of narrow beak forceps take them out separately; if in the upper jaw, remove one of the buccal fangs first, then with the socket as a guide for one beak of the forceps, remove the others;

if lower molars, the posterior fang will be most easily removed first, particularly if there is a tooth standing anterior to the roots. For the anterior fang, lying directly posterior to a large tooth, take a strong lance-shaped elevator, and standing at the side of your patient, force it well down between the sound tooth and the one to be extracted, then with a firm twist of the handle, the tooth serving as a fulcrum for the instrument, the fang is thrown backward and out. In removing the roots of the wisdom teeth where the second molars are in place, the operation is often much facilitated by the slightly curved elevator passed down between them and the second molar, then with a proper effort, force the roots back and up; if it is the superior wisdom tooth, and it offers much resistance, there is some danger of breaking off a portion of the tuberosity, to avoid which great care should be exercised. Forceps for the extraction of roots need to have the beaks narrow and sharp, with a variety in shape, sufficient to reach the fang in any position.

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### REMUNERATION FOR DENTAL SERVICES.

BY B. WOOD, M. D.

In response to your invitation to contribute a communication to the DENTAL TIMES, I have a mind to say a few words upon the subject of remuneration for dental services. Without a re-examination of the various articles that have appeared, I write with some hazard of merely repeating what already may have been much better written; but my impression is, that the points I wish to make have not been very prominently set forth.

We find the profession divided into two classes on the Fee Question; the one contending for such compensation as shall warrant the bestowment of the highest skill and benefit; the other striving to accommodate the price to the lowest requirements, with little reference to service.

Were the public all wealthy, generous, and intelligent; or were they all penurious and ignorant, (whether wealthy or not,) the conflict would cease. Society can command almost any benefit, within the capacity of human skill, they are willing to pay for, or by stinted reward debar themselves from every excellence produced by human skill. Adequate encouragement would enlist the best talent in our profession everywhere.

There is much to discourage the ambitious. But let it suffice, that there is a portion of the community who do concede such remuneration as will enable the operator to undertake and execute what adorns his calling, while it blesses the recipient. When the great public shall have better learned the nature of dental services and been brought to a better appreciation of them, we may believe that this state of things will be general,

and that wealth and generosity will provide eleemosynary means by which the poor also may share the highest benefits of the art.

On the other hand, there is no descending low enough in our rates to satisfy the penurious, (while the indigent are always beyond reach but of charities.) No matter how low the figures, there will be enough to underbid them, and, not to fall to the lowest bid offered, or a little lower, will leave the requirements unsatisfied.

At this time, when "sets of teeth" are advertised at \$5 and \$10, there is probably more "shopping and jewing" to procure them still less than ever before. The advantages assumed of bringing artificial teeth within reach of the poor, are questionable. Formerly the poorer classes kept their natural teeth as long as possible, and by prudent retrenchment of expenditures were able, when necessary, to get a serviceable set which did not mar their expression. Now rich and poor, flaunting in more finery, submit to the sacrifice of valuable teeth for the poor privilege of exhibiting the characteristic signs of "cheap dentistry."

Those who operate at the lower rates have a struggle to keep up *their* prices. Descend to gratuitous operations and patients will account it "bad enough to bear the pain," and feel a debt of gratitude due them for their favor and "influence."

Is it all benevolence on the one hand, and poverty on the other, that constrain to low fees? Dentists who were benevolently extracting teeth for twenty-five cents, or less, having recently gotten hold of laughing gas, now charge a dollar; and patients who before regarded the former "pretty steep," now find themselves able to pay the latter "and take the gas." In a little while competition will bring the same operators to "extracting teeth, with the gas, without pain, all for twenty-five cents," when the same class of patients will probably come to the conclusion that they ought to be compensated for taking the drug.

Preliminary to affixing an equitable compensation, we need a recognized standard of valuation, expressive of the nature of our duties. Much depends upon the stand point, or governing principle, assumed. It is a misconception that the principle is immaterial, so that there be unity of purpose and action. A wrong track leads wide of the goal. A house built on false foundation falls. The amalgam war miscarried because begun and conducted on the wrong principle. So the war upon patients, in making false issue against a system good in itself instead of abuses growing of out, eventuates in failure.

By what criterion should we estimate dental services? Doubtless, according to the knowledge, skill and time involved in their performance, rather than the number of operations done. Yet our fee bills assume the latter. The very captions start a wrong impression. They strike one as

bills of sale, so much a commodity, instead of remuneration for the exercise of skill, and benefits conferred thereby. "Prices for dental operations," and "fees for dental services," may mean the same thing, but they awaken different conceptions. Nor do they mean exactly the same. One shall get large pay for "operations," who, if his claims were based upon "services," would get nothing.

The "price lists" proceed to specify—for instance, so much each for gold plugs, small, medium, large, &c. Now it is clear enough to all, that the price should vary according to the amount of time and gold employed, but not so evident why different operators should vary widely in price in the same case. One may be competent, the other not, their charges differing accordingly. But the patient is a stranger to either; has, perhaps, been referred to both as qualified. If he chooses the inferior operator, it is because he gets the greater number of operations for his money; if the other, it is on the belief that he shall get the most service for it; this, common sense recognizes as the test of value. But how is he to judge? How determine the difference in the fillings, if he sees them, when it might require the inspection of a good dentist to discriminate? If the charges were based upon the *time* occupied, it would afford some surety that a like amount of *work* would be done in a given number of hours, whether expended upon a few plugs or many. In that case incompetent operators would have little advantage, since they generally charge well in proportion to the actual time and labor bestowed. It is not difficult to judge as to the manner of manipulating, and the "pains taken"—the skill in actual exercise. Why not then put our rates to be suggestive at once of skill, time, service?

It is a custom with some to insist upon expense of material, basing their estimate upon extraordinary cases. This, when the cavities in hand are large, looks plausible. The patient sees with surprise pellet after pellet introduced, and feels them well packed. He is satisfied of a "value received." But it is the idea of value in commodity, rather than service—the idea of traffic, bullion exchanged for currency. Of the means for reconciling our patrons to an equitable remuneration, I conceive this to be one of the most unfortunate. Yet I have known competent operators to ply it, in office and out. We ought to talk little about the cost of material? it would be much better if we could truthfully say it cost *nothing*, for this would make way for a more correct conception. Least of all should there be any exaggeration.

That the gold used in large cavities is an item, all understand. In such cases good operators will use an amount of foil costing more than the sum charged by pretenders for a like number of "stauffings" with the same material. Yet, it must be conceded, this expense is but a trifle in ordi-

nary cases, (as it should be in all,) compared with a fair compensation for services. Why attempt to magnify to patients? They, too, learn to estimate material, the cost of a book of foil, the number of sheets in it, how much goes into a tooth, &c., and while dentists take larger plugs as the ground of calculation, they take small ones, their estimate passing current on the assumption of disinterestedness. If the public perceive a disposition to magnify the actuality, is it strange they should come to underrate it? Misled by the idea of trade and barter, what wonder if they cavil at the "large profit" on the material? Better give them to understand, emphatically, that the material is merely a means to an end, that we do not charge a premium upon it, that our claims to remuneration are based upon services rendered, regulating the fee according to the time and skill devoted to the same.

One serious impediment in the way of a grade of fees which shall not only warrant the higher achievements of our art, but maintain the best services in ordinary cases, is a depreciatory spirit manifest (to a certain extent) among the better class of dentists themselves, (as well as others.)

A larger fee, in any particular, or for any service, is ascribed to anything but superior skill, or a juster appreciation. Pride will not tolerate the idea of greater value. Another's higher price is, so far, extortionate: one's own lower price is due to greater facilities or proficiency—anything that will commend one's self, or, at least, not another. Now if the better class employ this logic in respect to each other, why may it not be valid against themselves in the mouths of inferior operators. Besides, some may yet reach the higher stand-point—to be hit by their own shafts.

We should not disparage or impugn others for being so fortunate as to excel us in any particular operation, or to win a higher appreciation for the same service than we are able to win: much less pronounce their success in extraordinary cases a humbug, because we may not succeed, will not undertake, or dare not affix a compensation which will remunerate us for their successful performance.

ALBANY, NEW YORK.

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## NITROUS OXIDE.

BY T. L. BUCKINGHAM, D. D. S.

This gas is known by the name of *Nitrous Oxide*, *Protoxide of Nitrogen*, or *Laughing Gas*, (NO).—As the use of this gas to produce anæsthesia has recently been recommended by a number of the profession, it may be interesting to the readers of the DENTAL TIMES, to know how it may be obtained.

It may be procured by several different processes. When zinc is dissolved in diluted nitric acid, both the protoxide (NO) and the deutoxide of



nitrogen ( $\text{NO}_2$ ) is formed; if this mixed gas is allowed to stand over damp zinc or iron filings, the deutoxide is decomposed, one portion of its oxygen going to oxidize the zinc or iron which reduces it to the proto or nitrous oxide. By this process the gas is never pure, unless extraordinary pains are taken to obtain pure zinc and acid. All the common zinc of commerce contains impurities, and some a very large amount; the gas is never made in this way for inhaling. The process by which nitrous oxide is usually obtained, is by heating the nitrate of ammonia in a retort. The nitrate of ammonia is formed by the union of ammonia with nitric acid. Pure nitric acid is saturated with carbonate of ammonia, then evaporated and crystallized. The composition of this salt is  $\text{NH}_4\text{HO}, \text{NO}_3$ .

It was formerly called *nitrum flammans*, on account of its rapid decomposition when heated to about  $600^\circ$ ; it is deliquescent, and should therefore be kept in well stopped bottles. This salt is soluble in less than its own weight of water, at  $60^\circ$ ; the taste is acrid and bitter. The carbonate of ammonia frequently contains hydrochlorate of ammonia, which becomes mixed with the nitrate, and when the nitrate is decomposed, chlorine is mixed with the nitrous oxide. Chlorine when present may be detected by passing the gas through a solution of the nitrate of silver, or a better way is to dissolve some of the nitrate of ammonia in water, and then add some nitrate of silver in solution; if there is the least chlorine present, a white curdy precipitate will be formed. Nitrate of ammonia when exposed to the air, or kept in badly stopped bottles, shows the presence of acid when tested with litmus.

The apparatus necessary to make the gas is a glass retort, or bottle; a wash bottle, and a bag to receive it. The size of the retort will depend on the quantity of the gas required; it should never be filled more than one-third full of the salt, and should have a stopper to allow the gas to escape if generated too rapidly. The wash bottle may be of the kind known as Wolfe's bottle, with two or three mouths, or any ordinary wide mouthed bottle will answer the purpose, and should be from a quart to a gallon in size. An India rubber bag, holding not less than six or seven gallons, or when the gas is prepared for several administrations, a larger bag to receive the gas, and a smaller one of about five gallons to inhale it from.

To procure the gas the retort is placed where a lamp can be lighted under it, or a better way is to place it in an iron pan, partly filled with sand, arranged so that heat can be applied, as the flame of a lamp is liable to break the retort when directly applied. The retort is connected to the wash bottle by a tube passing through the cork nearly to the bottom of the bottle, and to another tube passing just through another cork of the bottle the bag is attached. The wash-bottle should be filled three-fourths

full of a solution of potassa or the sulphate of iron. When heat is applied to the retort the salt first melts, becomes fluid and boils, and at the temperature of about  $400^{\circ}$  F., the gas begins to come off—a gentle ebullition should be kept up. If the retort is heated too hot the gas comes over so rapidly as to endanger the apparatus, hence the importance of having a stopper in the retort to allow it to escape. The gas is forced down to the bottom of the wash bottle, and in passing up through the solution is washed, and the impurities it may contain are left in the solution. The gas bag must have a stop-cock in the tube attached, to prevent the gas from escaping when it is filled.

Instead of the India rubber bag, a metallic gas-holder is sometimes used; these are constructed in several forms; one of the most simple and convenient is to take a wooden vessel, such as a barrel that will hold water, and have a metallic one made that will go inside of it. The metallic vessel may be made of sheet iron, tin or copper; the latter is the best although it will cost the most at first. The metallic vessel is to be inverted inside the wooden one, and should have a tube and stop-cock attached to the top. The wooden vessel must have a tube passing in near the bottom extending upwards about two inches in the centre of the barrel and a stop-cock on the outside. There should also extend upwards from the barrel three or four pieces of wood to prevent the gas-holder from falling over when it is being filled. To collect gas in a receiver of this kind the barrel is filled with water and the stop-cock on the top of the gas-holder is opened so that it may also be filled with water. The stop-cock is now closed, and the one on the outside of the barrel opened to allow the water in the barrel to run off to within two or three inches of the bottom. The reason for doing this will be shown presently. The retort is now arranged in a position as high as the top of the barrel at least, and connected with the tube on the outside. When the stop-cock is opened the water will fill the tube to the height it is in the barrel, and if the retort was in a lower position than the barrel it would also become filled. If the barrel had been left full of water it would rise in the tube to the height of the barrel, and before the gas could pass into the gas-holder it would have to force the water out of the tube, which would require a considerable pressure, enough sometimes to break the retort. The gas passes in and comes up through the water into the receiver. As it becomes filled with gas it rises in the barrel; when full the gas passes out beneath and comes up between the barrel and receiver. The barrel should now be filled again with water, when the gas is ready for use.

Nitrous oxide in passing through water is deprived of any chlorine which might have been in it, the chlorine being soluble in water. The deutoxide of nitrogen is said to be formed when the salt is heated too

hot. This gas is not soluble in water to any amount, but when exposed to the air it takes two equivalents of oxygen from it and becomes nitrous acid, which is very soluble in water; hence the importance of leaving a small portion of air in the receiver. The deutoxide may be detected by allowing some of the gas to escape in the air, when it will show the red fumes of nitrous acid; they are seen when silver or copper is dissolved in nitric acid; they are of a reddish color and very poisonous. The properties of nitrous oxide and the administration of it will be a subject for a future paper.

### CREASOTE IN CAVITIES PREPARATORY TO FILLING.

BY WILLIAM H. ATKINSON, M. D.

Knowledge is said to be power. If so, those who possess it in any degree should remember that high authority suggests that "the strong should help the weak." And it is well known that we have all been weak enough in the matter of saving the teeth by filling them, even with our best and most improved materials and methods. Fulfil, barely, *three* conditions, and you may be sure that a tooth will remain without further loss by disintegration (caries or decay) in the place or cavity in which the conditions are obtained.

What, then, are the conditions?

- 1st. Secure a sound external margin to your cavity.
- 2d. So shape the cavity that it can *retain* the filling when solidly impacted therein; and
- 3d. Saturate the cut dentine with pure creasote, and put in your filling air and moisture-tight.

If any wish to know in what estimation I hold the above directions, let me state that they are deemed by me, when fully comprehended and properly fulfilled, as paramount to all other instructions, I ever heard or am able to give to him who is in earnest to do his work as a Christian or manly operator should perform all his labors. And I would take occasion to say that this is no hasty conclusion, but, the deliberate and well matured judgment of one who has struggled against ignorance and the attendant sequels thereof, for more than a quarter of a century with undying determination to conquer the difficulties in the way of saving the *natural* teeth, or die in the attempt, with his face and purpose set as a flint in that direction; feeling assured, that the conception, that it is *possible*, is the sure prophecy that we are destined soon to realize the full end sought by the noble ambition and aim, to preserve unbroken to every patient a full and regularly set natural denture to the end of his natural life on the planet.

NEW YORK, December 24, 1863.

## CREASOTE.

BY GEO. T. BARKER, D. D. S.

The therapeutical properties possessed by creasote, eminently fit it for extended use in dental practice. We have, therefore, concluded that no more appropriate subject could be considered, and propose to discuss, in a brief manner, its chemical and therapeutical properties.

Creasote is *officinal* under the name of *Creasotum* in the United States and British Pharmacopœias. The name is derived from two Greek words, signifying flesh—I preserve; and it possesses the property of arresting decomposition in animal tissue in a most marked degree, hence its name. This substance was first discovered by Reichenbach, of Blankso, in 1832, and it has been stated by him, as an example of its antiseptic properties, that fresh meat, dipped for a quarter of an hour in a solution of creasote, would be preserved from putrefaction, and contends that smoked meats owe their power of resisting change to the presence of that substance. Its specific gravity at 69° F. is 1.037, it boils at 397° F., and retains its fluidity at -17° F. Creasote is obtained by two methods, either from coal tar, or crude pyroligneous acid. The United States Dispensatory thus describes the process: "When tar is used, it is distilled until it assumes the consistency of pitch. The distilled liquid divides itself into three layers, an aqueous between two oily layers. The inferior oily layer which alone contains the creasote, is separated, and saturated with carbonate of potassa, to remove acetic acid. The liquid is allowed to rest, and the new oil which separates, is decanted from it. This oil is distilled, and yields products lighter than water, and a liquid heavier. The latter alone is preserved, and having been agitated repeatedly with weak phosphoric acid to neutralize ammonia, is allowed to remain at rest for some time. It is next washed, as long as acidity is removed, and then distilled with a fresh portion of weak phosphoric acid, care being taken to cohabit from time to time. The oily liquid thus rectified is colorless, and contains much creasote, but also a portion of eupione. To separate the latter, the liquid is mixed with a solution of caustic potassa of the density of 1.12, which dissolves the creasote, but not the eupione. The eupione which swims above from its levity, being separated, the alkaline solution of the creasote is exposed to the air until it becomes brown, in consequence of the decomposition of a foreign matter, and is then saturated with sulphuric acid. This sets free the creasote, which is decanted, and again distilled. The treatment by solution of potassa, sulphuric acid, &c., is to be repeated until the creasote no longer becomes brown by exposure to the air, but only slightly reddish. It is then dissolved in a stronger solution of potassa, and distilled again, and finally redistilled for the last time, rejecting the first portion which comes over on account of its con-

taining much water, collecting the next portion, and avoiding to push the distillation too far. The product collected in this distillation is pure creasote.

When creasote is extracted from pyroligneous acid, the first step is to dissolve sulphate of soda in it to saturation. The oil which separates and swims above is decanted, and having been allowed to remain at rest for a few days, is saturated by carbonate of potassa, with the assistance of heat, and distilled with water. The oleaginous liquid obtained is of a pale yellow color, and is to be treated with phosphoric acid, &c., &c., as above detailed with respect to the treatment of the corresponding oil obtained from tar.

Creasote, when pure, is colorless; as met with in the shops it is of a brownish tinge, probably due to the presence of certain impurities or adulterations. The commercial article has a penetrating, disagreeable odor, caustic burning taste and is readily volatilized by heat, it is also a non-conductor of electricity, and a powerful refractor of light. Chemically considered, it is composed of 76.2 of carbon, 7.8 hydrogen, 16 oxygen, or to express it in equivalents,  $C_{15}H_8O_2$ . Creasote is frequently adulterated with rectified oil of tar, and with the fixed and volatile oils. It is said the adulterations can be detected by treating it with strong acetic acid, which dissolves the creasote, and leaves the impurities floating above the creasote solution. Dr. W. H. Atkinson has recommended as a test pure olive oil; if it dissolves without leaving any precipitate, it may be considered pure. Specific gravity is not a good test, as liquids are used for adulterating purposes that may give it the requisite density. Creasote is exceedingly destructive to vegetable life. Miguet states that plants die when they are watered with a solution of creasote. A young and vigorous rose bush in full bloom, when thus treated, withered in the course of eight days. A few drops of the same solution applied to a red rose, deprived it both of color and life. On animals, creasote exerts a peculiar influence. It is stated by Dr. Stille, that "small fish die speedily in two ounces of water containing twelve drops of creasote. Flies, wasps, spiders and other insects, show signs of great uneasiness at the contact of creasote water, and at length die in spasms." Miguet tried several experiments demonstrating the effect upon dogs. He gave to a dog two months old, eight drops of diluted creasote, the effects were soon visible in general emaciation, feebleness of gait, and the occurrence of frequent nausea. To another he gave two drachms, the principal signs were great distress, labored respiration, obstruction of the air passages with mucus, constant nausea and violent retching. At the expiration of two hours death ensued. The principal lesion discovered was universal vascular injection of the gastro-intestinal mucous membrane. The lungs were engorged with

blood, and there was also a more than ordinarily dense coagulum of blood in the heart and large vessels. When injected into the blood vessels in quantities of about a drachm, the heart instantly ceased to beat.

Creasote possesses the following properties, viz: stimulant, narcotic irritant, styptic, antiseptic caustic, and escharotic. By some writers on therapeutics it is ranked among the astringents. (Headland on the action of medicine.) Others, also, rank it among the protectives and rubefacients. It possesses two remarkable properties: 1st. The property of arresting and preventing animal decomposition. 2d. The power of coagulating albumen, with which it unites, forming an insoluble compound. This last named phenomena is exhibited when a drop of creasote is applied to the mucous membrane, or the denuded cutis, first exciting a sensation of burning pain, then covering the parts with a whitish film, formed of coagulated albumen. This appearance is frequently seen by the dentist who introduces creasote into a tooth. If, by neglect of proper caution the lips or tongue are touched with the agent, a sense of pain, followed by the appearance of the white film of coagulated albumen will be noticed. The taste is so penetrating and peculiar, that it is stated that it can readily be detected in a solution of one part of creasote in *ten thousand of water*.

When creasote is swallowed in large quantities, it occasions severe and alarming symptoms. One fatal case is recorded, death resulting in thirty-six hours, from swallowing about two drachms. Another case is spoken of by Strumpf, in his Handbuch, of a woman, sixty years of age, who took a "considerable quantity" by mistake. She was almost immediately attacked with excruciating gastric pains, and within three or four hours had upwards of forty painful and bloody stools. Oil, milk and opium were administered as antidotes, under the use of which she recovered. In large doses, as above stated, it acts as a poison, and there is at present no antidote known to its poisonous effects. The treatment generally resorted to, is to administer ammonia and other stimulants. The fact of its being so violent a poison, should caution dentists who use the agent so universally, to extend considerable care that it is not placed in unsuitable positions, where portions of it may be taken either designedly, or by accident. The last named is not so liable to occur with this poison as with many others, in consequence of its burning taste and disagreeable odor.

When the use of creasote has been continued for a length of time, it is apt to occasion dullness, giddiness, and accelerated circulation, with more or less interruption of respiration, constant nausea and muscular lassitude. The urine, which is usually increased in quantity, except in diabetis, is colored, as if by India ink, and gives off the peculiar odor of the medicine. That creasote is readily absorbed into the circulation, is proven by the

case recorded of a woman who was attacked with faintness, vomiting, palpitation of the heart, and other symptoms of poisoning, in consequence of the continued use of creasote water, to a large ulcer of the leg. In our next we propose to consider creasote as a therapeutical agent, in the hands of the dentist and the general practitioner of medicine.

TO BE CONTINUED.

### A CASE OF DEATH FROM THE EXTRACTION OF A TOOTH.

BY GEO. B. SNOW, D. D. S.

Henry Campbell, aged 26, a grain shoveller employed in an elevator, was admitted to the Buffalo hospital of the Sisters of Charity, on Wednesday, A. M., November 4th, with violent inflammation of the lower part of the face and fauces. It appears he had a tooth, a lower bicuspid, extracted on the previous Sunday, by a so-called "doctor" practicing in the lower part of the city. Nobody went with him when he had the operation performed. From what he afterwards said about it, it is believed that the key instrument was used, and that some little trouble was experienced in getting the tooth out. He spoke of the gum lancet and other instruments as being rusty, and looking as though no pains were taken to remove the blood from them. He was in his ordinary health at the time, having been at his work the day before.

On Monday, his face about the lower jaw was swollen and painful, and continued to grow worse. On Wednesday, when he came to the hospital, the swelling was very great, extending over both sides of the lower jaw, under the tongue and into the fauces; his speech was scarcely intelligible, and the power of deglutition was very much impaired. A discharge, resembling disorganized blood, exuded from the gums of the lower jaw. Owing to the swollen and painful condition of the parts, no very close examination could be made. Friday, A. M., the condition was much the same; articulation was still more difficult, and deglutition impossible; the bloody discharge still continued oozing from the gums, but had more of a purulent character; his pulse was 100. Saturday, A. M., his pulse was extremely rapid, and he was evidently failing; he died about 4 o'clock, P. M. The immediate cause of his death was probably œdema of the glottis, impeding the power of respiration to such an extent that the blood became gradually carbonized and unfit to support life.

So far as was ascertained, no unusual amount of injury was done in the extraction of the tooth. An examination was made after death, but nothing new was elicited. The *cause* of the mischief, I am afraid, is past finding out. Can any one throw any light upon it?

BUFFALO, NEW YORK.

Judging from the symptoms in the above case, it is probable the patient was attacked with erysipelas, which resulted in his death. W. S. F.

## THE TREATMENT OF EXPOSED NERVES.

Abstract of a paper read before the "Brooklyn Dental Association."

BY THOMAS BURGH.

Much has been said upon this subject, and it may be considered hackneyed; but it is, nevertheless, an important and inexhaustible theme; and it is my desire to awaken discussion upon it. I am impelled to consider this subject as much by penitence as from any other consideration. Penitence! that in time past so many teeth have been wrenched from their sockets that might now fill their appropriate places. Penitence? No, rather regret. I did no moral wrong, but only carried out the practice as taught to me. But observation has enlarged my views, and I now so seldom extract a tooth, that when called upon to perform the operation a feeling of nervousness is always present; unless it is an old ulcerated root, and then a double pleasure is experienced in doing it; first, because nature is being relieved, and is assisted in the expulsion of a disgusting excretion; second, because the evidence of the patient's shame and neglect is destroyed.

The dental profession has, in all its branches, made many advances during the last few years; but there is nothing, in my opinion, which has shed so much lustre upon it as its progress in the treatment of exposed nerves, and the consequent saving of so many teeth that formerly were so unthinkingly sacrificed. If there is one thing, among ordinary operations, which makes me proud of my profession, it is this progress. To extract from the centre of the tooth its exquisite nerve, its life-giving tissue, when it has become a source of torment rather than a benefit, and save the tooth, is to me always a source of satisfaction. This may *indeed* be termed "Surgical Dentistry." To extract that tooth, and supply its place with an artificial one, is one of the lowest achievements of the profession. To destroy the nerve, and, without removing it, fill the tooth, is but little better.

The operation of capping the nerve has, in my judgment, disappointed the expectations formed of it. The profession must take many a step in advance before it can be generally performed. To do it satisfactorily and habitually is not only an evidence of the highest skill, but also of far more attainment in general medicine than the profession has yet acquired. For my part I have ventured upon it in but few instances, and some of these have caused me more trouble than all my fang fillings together. A case in point occurred a few years ago, which, as it gave me much trouble and some months of honest effort to save the nerve alive, I will relate. A gentleman came to me to be relieved of the toothache; it had not ached much, but still was an annoyance. The tooth was an inferior molar, and the cavity was in the anterior approximal surface.



Upon excavating it I could not determine whether the nerve was exposed, not being able to see it, and pressure upon it of cotton caused no pain. But still it gave many symptoms of being exposed, and considering it a favorable case for capping, resolved, if possible, to save the nerve alive. The cavity was filled with gutta percha, intending to put in a more substantial filling in course of time. In a few days he returned saying that his tooth was a constant source of annoyance to him, with a steady, slight, dull ache. In course of time this increased, and I became satisfied that if the nerve was to be saved, it could not be done with a filling of gutta percha. The filling had been introduced with as little direct pressure upon the nerve as possible: but it was removed, and replaced by a filling of *plaster of Paris*, intending, if it caused no pain, to remove the bulk of it, and fill with gutta percha. In a few days the patient returned, and gave me much satisfaction by saying that his tooth had been perfectly easy, had not caused the slightest pain since last filled. The plaster seemed to soothe the nerve, and a layer was left to cap the pulp, while the rest of the cavity was filled with gutta percha. He was then dismissed for some three months. At the end of that time he returned to have a permanent filling inserted, assuring me that he had not had the slightest trouble in his tooth. I congratulated myself, and thought I had discovered a good thing with which to cap exposed nerves. But was much surprised when, upon examination, the reluctant conclusion was forced upon me that the nerve was dead, and the alveo-dental membrane apparently dead and suppurating. Upon removing the filling, a little black spot revealed the point of exposure, which could not be seen whilst the nerve was alive. Now it is strange that the nerve should die after the introduction of the plaster without causing any pain, and I have thought that if the tooth had been filled with plaster in the first place, it might have been successful. And here let me mention what I consider the unfitness of gutta percha for this purpose. My experience with it indicates that it is a very irritating substance. Why it should be so, it is difficult to determine, unless it absorbs the saliva, and thus expanding, presses upon the nerve. That it does so, its efficacy in preserving the walls of a cavity, for so long a time, would seem to indicate.

This case has been detailed to show the difficulty of saving an exposed nerve alive. By my efforts to save this one, I not only lost the nerve, but the investing membrane also. Had the nerve been destroyed, this membrane might have been saved; thus contributing much to the usefulness of the tooth.

The only case in which I would cap an exposed nerve is when, in excavating, the nerve is slightly exposed; and when it exhibits that low degree of vitality which suffers contact without causing much pain. And

even in such a case would not have much confidence, for all that have come under my observation after being so treated, have either filled me with doubt, or convinced me of failure. The patient usually complains of a slight, dull ache, constant or at intervals; the sure indication of the progress of some change: it may be the recuperative efforts of the pulp, secreting a new deposit of dentine for its own protection, but in my opinion it is its expiring struggles. If the nerve has previously ached, or if upon exposure it causes that intense pain which it usually does, no one should hesitate a moment to destroy it. My mode of doing this, is to employ arsenic, mixed with equal quantities of morphia and creasote. When the practice of fang filling was first taught to me, I was assured the only safe way to destroy the nerve was by extirpation; and so inflicted the tortures of this operation upon every case which came under my charge. What, though it did cause the patient some pain, it was thought frivolous to regard this, when such important results were involved. But the difficulty in getting my patients to submit to it, and the success met with not warranting it, induced me to return to arsenic; and now think that since that method has been adopted, I have been more successful than when extirpation was practiced. All will admit that it is important to preserve the alveo-dental membrane alive, and there is more danger to be apprehended to this membrane from irritation produced by extirpation, than any that can arise from the use of arsenic. I have heard of extirpating the nerve entire, and at once, and must say that with me it has never been successfully accomplished—have succeeded in drawing some blood, and in extracting a small portion of the nerve at a time, keeping it lingering along for days, thus irritating the alveo-dental membrane, producing inflammation, and often its death.

Arsenic is now used by me on a pledget of cotton about the size of a pin's head, applied as directly over the nerve as possible; then seal up the cavity with wax and allow it to remain for twenty-four hours, then replace it with cotton and creasote, which let remain for about a week. At the end of this time the nerve is so toughened that it can generally be easily extracted.

My reason for extirpating nerves was that arsenic was liable to penetrate the structure of the tooth and attack the investing membrane. From my own experience I am not sure that this is correct; on the contrary it fails to confirm it. But I have been shown teeth extracted by others, their loss being attributed to the use of arsenic. Upon being split open, the centre of the tooth around the pulp chamber was dyed quite yellow; but this could be attributed more to the use of iodine than arsenic. Whichever it was, it must have been used very injudiciously. A tooth may be destroyed by the use of that which, judiciously employed, would be

a benefit, just as a person may be poisoned by what, in proper quantities, would give him new life and health. That there are teeth lost from this cause is not improbable.

It was formerly my habit to treat the tooth with creasote for a week or so after the nerve was removed: but I can see no good reason for the practice, unless it is an ulcerated tooth. In this case, the alveo-dental membrane being dead and suppurating, the application of creasote will overcome the secretion of pus, and by its preservative qualities prevent further suppuration, at least, until the influence of the creasote is dissipated. But there is no such reason as this for its use when the investing membrane is alive and healthy. On the contrary, I should consider this condition an argument against its use. If creasote preserves dead tissues, it will also destroy the vitality of live ones. It prevents decomposition, but is destructive to vitality. What reason then can be given for its continued employment when the investing membrane is in this condition?

The sooner a healthy tooth is filled after its nerve is removed, and with the less doctoring, the better. My habit lately is, after the nerve is removed to wipe out the cavity with creasote, introduce a little cotton saturated with creasote, no more than the cotton will absorb, into each fang, and fill. This particle of cotton will never decompose, and as it will retain its creasote for an indefinite period, it will be a preventative to the decomposition of any particle of nerve which may be left in the fang.

NEW YORK CITY.

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## CAOUTCHOUC.

ITS HISTORY, PROPERTIES; ITS COMBINATIONS FORMING HARD RUBBER, AND THE MANNER OF WORKING IT FOR DENTAL PURPOSES.

BY E. WILDMAN, M. D., D. D. S.

Hard rubber having been so generally adopted as a base for artificial dentures, I deem that it may prove interesting and instructive to the profession, to treat upon it somewhat in detail, in accordance with the above caption.

Caoutchouc, called gum-elastic, and also India rubber, has been known for a long period of time to the natives of the Old and New World, in Hindostan and South America. "It was not, however, until the expedition of the French Academicians to South America, in 1735, that its properties and nature were made known in Europe, by a memoir upon it, by M. de la Condamine. This notice of this substance excited little attention, and subsequently notices of this substance were sent to the French Academy, in 1751, by M. Fresneau, and in 1768, by M. Macquer." At the latter end of the last century, and in the beginning of this, it was

introduced into Europe in small quantities, and on account of its being chiefly used for rubbing out lead-pencil marks, and coming from the Indies, it acquired the name of India rubber.

The particular species of plants which are employed for procuring India rubber are very numerous, and it is probable that many yield it which are not known to botanists. A great majority grow in tropical regions, yet the temperate are not without their representatives.

The tree which supplies the most caoutchouc in Continental India, is the *Ficus Elastica*, a tree belonging to the order of *Moraceæ*. It is exceedingly abundant in Assam, and also in the District of Naudwar. According to a report published by Mr. William Griffith, "this remarkable species of fig tree is either solitary, or in two-fold or three-fold groups. It is larger and more umbrageous than any of the other trees in the extensive forests where it abounds, and may be distinguished from the other trees at a distance of several miles, by the picturesque appearance produced by its dense, huge and lofty crown. The main trunk of one was carefully measured, and was found to have a circumference of 74 feet, while the girth of the main trunk, along with the supports around it, was 120 feet. The area covered by the expanded branches had a circumference of 610 feet; the height of the central tree was 100 feet."

"It has been estimated, after an accurate survey, that there are 43,240 such noble trees within a length of 30 miles, and breadth of 8 miles, of the forest near Ferozepoor in the district of Chardwar, in Assam."

"Lieutenant Veitch discovered that the *Ficus Elastica* is equally abundant in the District of Naudwar. Its geographical range in Assam seems to be between 25 deg. 10 min. and 27 deg. 20 min., of north latitude, and between 90 deg. 40 min. and 95 deg. 30 min., of east longitude. It occurs on the slopes of the hills, up to the elevation of probably 22,500 feet."

This tree is of the banyan tribe, famed for "its pillared shade, where the daughters grow about the mother tree." Species of this genus afford grateful shade in the tropical regions of America, as well as in Asia. Roxburgh says the wood of this tree is brown, soft and porous, and only fit for fuel, and that it bears figs (which do not appear to be eaten) that grow in pairs from the base of the broad, leathery, shining, deep green leaves; when ripe they are oval, about the size of an olive, smooth, and of a green-yellowish color.

Species of the *Ficus* produce the Caoutchouc brought from Java, and the *Ficus Radula*, *F. Eliptica* and *F. Prinoides* are among those affording a portion of that obtained in America.

All the species of *Ficus* yield caoutchouc to a greater or less extent in

their milky juices, and even the common fig of Europe (*Ficus Carica*) contains it.

Next to the *Moraceæ*, the order of *Euphorbiaceæ* yields the largest quantity of caoutchouc. The *Siphonia Elastica* belonging to this order is found in Guiana, Brazil, and extending over a large district of Central America. According to Dr. Lindley, this tree produces the Para rubber, which is considered the best that is brought to the markets of America or Europe. He describes this tree as growing from fifty to sixty feet in height, and from two to two and a half feet in diameter. The bark grayish, and not thick; the wood white and light. The leaves each consist of three or more blunt leaflets attached by a joint to a slender foot-stalk, and having an oblong form, narrowing to the base; they are green above, but ash colored on the under side. The flowers are small, greenish, in long bunches: the fruit about as big as a walnut, with the rind that separates of itself, and a hard bony shell splitting with elasticity into half a dozen pieces. In each cavity of the fruit are found from one to three seeds, about as large as filberts, but shining, and mottled with brown upon gray in the manner of castor oil seeds. They are agreeable to the taste, and are stored up by the Indians, who experience no inconvenience from eating them, notwithstanding their relation to such acrid plants as the West Indian purging nut, or the *Tigium* bushes of the East Indies.

"It was long supposed that there was only one species of *Siphonia*, but Mr. Bruce, a distinguished botanist, in his investigations in Brazil, made botanists acquainted with several others, viz: *Siphonia Lutea*—found near Panuré on the river Uapes; *Siphonia Discolor*—from the north bank of the Amazon, at its junction with the Rio Negro; and also from Panuré; *S. Paucefolia*, *S. Rigidifolia*, from Panuré, and the *S. Spruceana*, from Santarem, in the province of Para."

To another order, *Apocynaceæ*, we are indebted for the caoutchouc which is brought from the islands of the Indian Archipelago. The plant from which this substance is obtained, in those districts, is the *Urceola Elastica*, a climbing plant of rapid growth and of gigantic dimensions. A single tree (or vine) is said to yield, by tapping, from fifty to sixty pounds of caoutchouc annually.

Mr. James Howison, a surgeon residing in Prince of Wales Island, gives a description of this plant. He says, "this vine was about as thick as a man's arm, with a strong cracked ash-colored bark. It had joints at a small distance from each other, often sent out roots, seldom branches, ran along the ground to a great length, and at last meeting with a tree, ascended it, rose to the highest branches into the open air. It was found in great plenty at the foot of the mountains, upon a red clay mixed with

sand, in situations completely shaded. It was afterwards met with on the west coast of Sumatra, and other Malay countries."

Roxburgh describes its leaves as being opposite on short stalks, oblong, pointed, a little rough, with a few scattered white hairs on the under side. The flowers are small, of a dull greenish color, and are produced at the ends of the shoots in bunches, like those of the lilac bush. The seed vessel is latterly compressed into the form of a turnip, is wrinkled, leathery, about three inches in the greatest diameter. The seeds are numerous and immersed in pulp.

Many other plants of this order yield caoutchouc, and of those given on good authority are the *Collophora Utilis* and *Cameraria Latifolia* of South America; *Vahea Gummifera* of Madagascar, and the *Willughbea Edulus* of the East Indies.

To this order belongs the cow tree, (or Hya-Hya as it is called by the natives,) *Tabernaemontana Utilis* of tropical America, which yields a milky juice, which is collected and drank by the natives of the district in which it grows.

Also, to this order belongs the *Asclepeas*, or milk-weed, from which I have obtained caoutchouc in small quantities.

To this order belongs the *Hancornia Speciosa*, a tree very common about Pernambuco and Olinda, and it is also found at Bahia. Gardner describes it "as attaining the size of an ordinary apple tree, though its small leaves and drooping branches gives it more the appearance of the weeping birch. The fruit is yellow, a little streaked with red on one side, about the size of an Orleans plum, and of a delicious flavor. When in season it is brought in great quantities to Pernambuco for sale." According to Mr. Clausen, "this tree is found on the high plateaux of South America, between 10° and 12° south latitude, at the height of from three thousand to five thousand feet above the sea. The leaves are opposite each other on slender branches, about two inches long, oblong, suddenly ending in a blunt point, shining above, but on the under side pale, with fine parallel veins. The flowers are slender, tubular, about one and a half inches long, and growing singly from among the leaves."

Mr. Paul B. DuChailu, in his explorations in equatorial Africa, says, "The caoutchouc of Africa is obtained from a vine (called *dambo* by the natives,) and not from a tree. The vine is of immense length, and has singularly few leaves and only at the extremity of the vine. The leaves are broad, dark green, and lance shaped. The bark is rough, and of a brownish hue. A large vine is often five inches in diameter at the base. To get the best India rubber, the milk must be taken from the bark, without wounding the wood, as this has a juice of its own, which mixing with the milk, spoils it. The recently growing demand for this product,

induced the natives to adulterate it with the milky juices of various trees and vines found in these forests. This has seriously injured their trade, but will probably result in saving this valuable vine from extinction in this part of the country. This disaster was like to be caused by the foolish improvidence of the native caoutchouc collectors, who bled the vines in so many places as to exhaust them of their life-blood. In this manner, some years ago, thousands of vines were destroyed annually. This vine is of slow growth, and the milk of the young vine is thin and watery. The caoutchouc vine grows equally well in low and high ground, but is found most plentifully in the valleys and bottom lands along the Muni and other rivers. The milk taken from the vines growing on high lands is, however, thicker, and yields a better article of India rubber."

The same author says, "the whole country around Lake Anengue is literally filled with the India-rubber vine. Immense quantities of the best caoutchouc might be got and with very little trouble, if only the natives had some one to show them how to gather it without destroying the vines, and without getting it mixed with impure matter as to destroy its commercial value."

TO BE CONTINUED.

## REVIEW OF A MANUAL ON EXTRACTING TEETH.

BY GEO. T. BARKER, D. D. S.

The author of this work, Dr. Abraham Robertson, is doubtless familiarly known to the readers of this journal, as a careful writer and frequent contributor to the Dental (periodical) literature of the day. The work is intended to be a hand-book for the dentist, and to impart such *practical* information as may be of value in the performance of this necessary dental operation. This manual, we are told, in his prefatory remarks, is the first work, so far as he is aware, that is devoted exclusively to the consideration of this subject, all that has been written being comprised in a few minor articles in dental journals, and an occasional chapter in treatise on dental surgery. The demand, therefore, for a practical work on extracting teeth must be fully apparent.

The first chapter is devoted to general introductory remarks, as to the unsuitable instruments of the ancients, the inadequate amount of anatomical knowledge possessed by them; the extraction of teeth being generally consigned to the barbers, the learned physician considering it unworthy of attention. Dr. R. here states, in the following clear and concise manner the object of this work.

"What we propose to do, is to describe and illustrate the instruments best adapted to the perfect accomplishment of the objects under consideration—the entire removal of every tooth, and root of a tooth that requires

extraction, with the least amount of force by the operator, with the least possible injury to the surrounding parts, and consequently with the least amount of present pain and after suffering to the patient, and the most appropriate methods of applying and using such instruments to effect such results.”

### CHAPTER II.—*Anatomy of the Jaws and Teeth.*

This chapter is ably written, the anatomy of the structures being considered in a plain and comprehensive manner. The intimate relations of the parts to each other is treated at length, as is also the special anatomy of the teeth, giving evidence of careful study and investigation.

### CHAPTER III.—*Pathology of Tooth-ache.*

Caries of the teeth is first taken up, with a short description of the various causes which tend to induce this pathological condition. We specially recommend this portion of the work to a careful perusal. We make the following quotation :

“Dyspeptics who are troubled with great acidity of the stomach, and with frequent regurgitations of such fluid into the mouth, as is a very common occurrence in such cases, are almost always sufferers from this cause. Persons taking acids as medicines, without taking proper care to avoid their coming in contact with their teeth, or immediately to neutralize the acid, suffer in the same manner. The saliva in its normal state, including the saliva proper and the buccal mucus, is alkaline. The mucus is slightly acid, while the secretion of the glands, which is by far the most abundant secretion, is alkaline.”

The general effect of a diseased condition of the human economy in modifying the normal secretions of the oral cavity, the effects of medicines, the mineral acids, and their influence in establishing caries, imperfect organization of the teeth, and effect of mechanical violence, receive from the author appropriate attention, the agency of each being detailed in the production of dental caries. Section 2 of this chapter treats of the varieties of tooth-ache and their causes, viz: 1st. Tooth-ache from exposure of the nerve. 2d. From inflammation of the nerve without its direct exposure, resulting in the formation of pus in the nerve canal, abscess, &c. 3d. From inflammation of its periosteum. 4th. From inflammation of its dentine. 5th. From sympathy or reflex irritation—neuralgic tooth-ache. 6th. From exostosis. 7th. From accidents.

In treating of the second variety, Dr. R. gives an excellent description of the pathology of periostitis and alveolar abscess, and it is referred to as worthy of careful study and perusal. In the third variety the predisposing and exciting causes to inflammation of the periosteum are considered. He then says, “This is the kind of tooth-ache that has sometimes thought to be ‘epidemic.’ These ‘epidemics’ occur after long raw storms, or other great atmospheric changes, and as teeth in this condition are always liable to be affected by ‘taking cold,’ they are usually most troublesome



after such changes, and as there are always a great many of them in every community, such epidemics are pretty frequent." Variety number four deserves from us an extended notice, and yet, after carefully re-reading it, we can see no point that a good quotation can be made, by which our readers can form an adequate conception of its merits. Each paragraph gives evidence of thought and study, and we esteem it a most clear and logical exposition of the possibility of human dentine to take on *inflammation*, and is calculated to overthrow the erroneous idea which has been persistently expounded by certain writers on this subject, that in consequence of the calibre of the tubuli of the dentine being so small as to exclude the red corpuscles; and the microscope, except in rare cases, disclosing no vessels—human dentine could not inflame; regarding the condition known as *sensitive dentine*, as a physiological, rather than a pathological phenomenon. The remaining varieties of tooth-ache are interestingly considered.

Chapter IV treats of instruments used for extracting teeth, and the proper method of using them, with instructions as to the adaptiveness of certain shaped instruments, and the best modes of seizing a tooth and removing it from its socket. The remaining chapters of this valuable little work are devoted to the subject of lancing the gums, accidents attendant upon the extraction of teeth—their remedies, and anæsthetics. The general typography of the work is excellent, the only exception to the general good character is in the illustrations, particularly of the chapter on the Anatomy of the Jaws and Teeth, these illustrations are inferior, and detract from the neat appearance of the work. It is published by Messrs. Lindsay & Blakiston.

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### "DO YOU INSURE YOUR WORK?"

BY JOHN D. WINGATE.

This question is often asked by anxious patients, who are about deciding that something must be done for the preservation of their teeth. There are plenty of operators who insure all of their work; and could, if required, insure anything, from a long life to the painless extraction of the most difficult molar. Unfortunately, the insurance of this class of operators does not amount to anything more than to deceive unwary patients, who, after being disappointed in their expectations, put down dentistry as the chief of humbugs. A few years ago, a man operated not far from this town, who was so infatuated with the superiority of his work, that he thought it could not give way; and, of course did not hesitate to insure. On his patients presenting themselves with fillings out, he would positively assert they were drilled out; and, consequently, he was justified in

not refilling. Much insurance is needed to keep the authors of such operations afloat. In an intelligent community, the physician is not required to insure cures. It is expected of him, that he does all in his power to bring about the much desired cure; and he reasonably expects to be rewarded for the amount of labor and skill he bestows on the diseased. When a dentist does his duty, he also has a right to look for his remuneration. It should be one of the principal aims of the dentist, to inspire confidence in his patients, by doing his work in a workmanlike manner; and a case is not properly finished until it gives evidence of this good result, as no half-way operations should be tolerated by any operator who cares for the integrity of his profession. Neither should any one presume to fill the place of a dentist until he knows he has the requisite qualifications. It must be a troublesome life, that pretenders lead, when they are constantly harassed with unsatisfactory work, being constantly brought back to them, and for want of new employment are obliged to change from place to place, where they are not known. There is no reason why a man should fail when a reasonable case presents itself, and a difficult operation should under no circumstances be insured, as the risk of reputation involved, should rather throw the responsibility of a failure on the patient than the operator. If the operator, in a candid and brief manner, gives a reasonable explanation why the operation may not succeed, the intelligent patient is generally willing to take the risk upon himself, considering it a favor that the operation is undertaken at all.

It seems perfection is sought alone with the dental profession; but, it may be well enough for patients to understand, that dentists, like other human beings, are subject to frailties and infirmities; that their work may also yield to time and hard usage.

Should a filling, unfortunately, slip out where a good result could be anticipated, the operator should in humility replace it as soon as possible, whether it lasted only a year, or even longer, and apologize to the patient for the inconvenience to which he was subjected, as the operation was an imperfect one.

When an artificial denture is wanted, the anxious candidate often wishes an insurance that he or she will be able to eat on it. It is well enough to inform the patient, that if he is possessed of sufficient skill there will be no trouble on that score, as the rest of the patients eat on theirs. But it is hard to tell the amount of skill each patient possesses; that the case will be put up in the highest style of art; and as strong as the materials will permit. Should he not choose to have the case with such explanations, his expectations may not easily be realized; and, it is better not to have such patronage.

## CASES OF FACIAL, NASAL AND PALATINE DEFECTS.

At a recent meeting of the Pennsylvania Association of Dental Surgeons, the above subject being under consideration, Dr. Wm. H. Hoopes, of Baltimore, presented to notice several cases on this subject, which, being considered of special interest, are accordingly detailed. The first case introduced to notice, the mask of which was exhibited to the meeting, was where, from secondary syphilis, extensive loss of the soft tissues of the face had taken place. The following muscles were entirely removed by the disease on the left side, and partially upon the right; *compressor naris, levator anguli oris, levator labii alaeque nasi superioris, zygomaticus major and minor, orbicularis oris, depressor anguli oris, depressor labii inferioris*, a portion of the buccinator on left side, the nasal cartilages, septum, and a portion of the left malar bone. The jaws were firmly ankylosed, so that nourishment could only be obtained by means of a pipe inserted between the teeth. He remarked that it was impossible to give an adequate description of the appearance of the person, the disfigurement might perhaps be imagined when it was considered how great had been the destruction in the soft tissues; from the loss of the lips, the teeth and alveolus were constantly exposed, giving the person a most hideous expression. What more than all complicated the case was, the constant trickling of saliva from the exposed duct of *steno*, the main duct of the parotid gland. He proposed to treat the case in the following manner, restore the lost parts as nearly as possible by means of an artificial substitute of vulcanized rubber, consisting of a nose, lips and chin, painted to resemble the remaining healthy structures, also forming on the mask, at its dependent portion, a cup-like cavity, into which the saliva might pass and there be retained, to be removed from time to time. He proposed to retain the mask upon the face by means of a strong pair of spectacles, the bows of which would clasp at the back of the head.

The second case referred to by Dr. Hoopes, was one treated by him in the year 1860, and published at that time in the American Journal of Dental Science, an abstract of which is here appended. H. R.—, aged 40 years, had enjoyed good health until about fifteen years ago, when he contracted primary syphilis; four years subsequently the disease, in a tertiary form, attacked the internal surface of the nasal bone, and continued to spread for some five years, when, fortunately, its progress was arrested, though not until it had committed the most terrible destruction of the bones and soft parts of the face. The following cut inadequately presents the appearance of the face.

It may be better understood by a description. The lower margin of the nasal bones are destroyed with the entire vomer, the nasal cartilage and a portion of the septum. The left inferior turbinated bone is gone,

and a portion of that of the right side. The anterior portion of the malar bone is destroyed on the left side nearly reaching the antrum, also the superior alveolar process, leaving a mere rim, with three molar teeth on one side and two on the other; the central portion of the palatine bones is also gone, leaving an open space about the size of a half dollar piece. Of the soft parts the destruction has not been less extensive. The upper lip is destroyed, except at the angles of the mouth; and ulceration had taken away much of the soft tissues of the posterior nares. The muscles of the upper lip and face that are partially destroyed are the *orbicularis oris*, *levator labii superioris alaeque nasi*, and on the left side a part of the *zygomatic and levator anguli oris*. It should be remembered that the sketch given reverses the side of the face.



On looking inwards and downwards, the parts presented a deep, large cavity; the motions of the uvula could be seen by looking into the nose, and the tongue closed the opening through the palatine bones. Of course speech and deglutition would have been impossible, had not the patient continually kept a large piece of raw cotton in this opening. The lower lip had also begun to suffer the ravages of the fearful disease, but it was arrested at this period, and this lip presented an enlarged appearance, from the healing of a large-granulated surface.

The first step in the process of making a mechanical contrivance to hide this hideous deformity, was to make a cast in plaster of the anterior portion

of the face, and another of the mouth. A gold plate was then made, fitting the roof of the mouth; and upon this were inserted all the teeth that were deficient, and this plate was clasped to the remaining molar teeth. A model of an artificial nose and upper lip was then made, as near the natural form as possible. A cast of this model was filled with hard rubber, which was then vulcanized. A gold bar was attached to the inside of the artificial nose, which was made more firm by a cross-bar. The opening through the palatine bones gave an opportunity to secure the nose to the plate, this was done by attaching a short tube to the plate and passing the bar through it. The plate was then placed in the mouth, the nose was attached to the face, and the bar was passed through the tube, which held it firmly in position. The stiff unnatural appearance of the upper lip was hidden by a heavy artificial moustache. The connection between the artificial and natural nose was concealed by the bow of a pair of spectacles. The artificial nose was then given a life-like color, and the illusion was complete.



This appliance so fully answered the purpose, that the wearer had, at subsequent times since its introduction, assured him that it was perfectly priceless, and that he felt, if possible, like a new man. Being of a genial and lively temperament, he was, previous to the introduction of the artificial appliance, debarred by his disgusting appearance from all society, being emphatically the "observed of all observers." He had, therefore, contracted the habit, when walking in the street, of pressing over his face

a large slouched hat, and carrying his head as low as possible upon his chest. On first placing the appliance in position, they started together for the photographic artist who was to take his picture. While walking down the street, for the first few squares, he noticed that he adopted his old habit of walking, with head down, and covered as much as possible. He soon, however, remarked to the Doctor, that he believed "no one was looking at him," and, before they reached their place of destination, the man had straightened himself up several inches, and carried his head as high as any one; he could now set at his hotel table without his opposite neighbor remarking the artificial substitute for his lost nose and lips. His speech was also greatly improved. Dr. Hoopes detailed an interesting case of artificial nose inserted by him the previous week. As it had, however, no special points of interest over the case just recited, he would not do more than present to notice the photographs of the patient before and after application of the mechanical substitute.

At the close of the meeting, a unanimous vote of thanks, on motion of Dr. J. W. Van Osten, was tendered to Dr. Hoopes, for the elucidation of the cases so ably treated by him in this department of surgical dentistry. A vote of thanks was also tendered to Dr. Wildman, who presented models of a case of great interest, recently treated by him; it will appear in our next number.

G. T. B.

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### DENTAL GOSSIP.

*The Dental Times.*—I have read with great pleasure the first two issues of the TIMES, and I wish to say that the very sensible, practical and pointed character of the articles which have appeared in it, added to the fact, that each number is filled with original matter supplied principally by those engaged in teaching, as well as practicing dentistry, greatly enhances its value, and should secure for it what it eminently deserves, a wide circulation and a generous support.

The general arrangement and the mechanical quality of the journal, are all that can be desired, yet the absence of an editorial department is rather singular; it is like the play of Hamlet with the character of Hamlet omitted. I believe in such special department for the single reason, if for no other, that the editor or editors can there have more social and familiar and direct intercourse with his readers. Again, there are many special notices, such as new books, improvements, &c., that should find place somewhere, and no place so appropriate as under an editorial head.

*Esprit du corps.*—In my brief professional reading I came across the following precious morsel in the proceedings of the New York Academy of Medicine, and which was copied into one of our Dental Journals without any suitable comment. The dentist, whose remarks I append, I

think I knew, many years since, and who had the benefit, some twenty-five years ago, of an able and an honest preceptor,—John Burdell,—a man who not only respected his profession, but took pride and labored hard in its advancement. The discussion in the Academy's proceedings, in which the dentist participated, was in reference to an appliance made by the dentist himself for the cure of a fractured jaw. In answer to a question from one of the medical gentlemen as to the form in which the article could be purchased, the dentist replied : (the small capitals are my own.)

“There are a great many details about getting an accurate cast of the jaw, which one not acquainted with mechanical dentistry would not be prepared for. The surgeon should find the BRAINS, while the dentist attends to the mechanical part.”

Now, I can look upon this in no other light than as one of the most pitiful and lamentable exhibitions of sycophancy and toadyism to the medical, as well as a gross insult to his own, the dental profession. Surely it is an unclean bird that fouls its own nest.

*Dentists in the Army.*—I have been told by a military officer that dentists are greatly needed in the army. That he had repeated occasions to give men furloughs to go to Washington to have teeth filled and otherwise treated; for very many in our army are sufficiently intelligent to know that troublesome or decayed teeth may be saved, and are therefore unwilling to have them sacrificed by extraction, which is all the army surgeon can do; therefore, the want of an intelligent dentist is apparent, who, I have no question, could make it mutually advantageous, (as he would charge for his operations,) by remaining with the army, which, no doubt, he would be permitted to do on making proper representations to those in immediate authority. I trust this hint may be acted upon, to the advantage of both soldier and dentist. Such a procedure would furnish an unanswerable argument in favor of what the profession has been long contending for, Governmental employment of dentists in the army.

*Pennsylvania College of Dental Surgery.*—On visiting this school recently, I was glad to find so full and intelligent a class in attendance on the present course of lectures. I see in this not only encouragement to those engaged in teaching, (a matter in itself of no small importance,) but satisfactory evidence of a prevailing disposition on the part of those about entering the profession, as well as many who have been in practice, to fully prepare themselves for an able and an intelligent discharge of its duties and responsibilities. All this tends directly and powerfully toward the establishment of the profession on its proper basis; and to give it that character and influence it can and eventually must maintain and exert.

*The Proceedings of the Pennsylvania Association of Dental Surgeons*

for November, as reported in the "Dental Cosmos" for December, contains some very queer things. The reporter would seem to have taken playful liberties with the remarks of one of the speakers, particularly in making him say, when describing the effects of syphilis in a patient to whom he had supplied a NOSE, that it had deprived "the unfortunate man of the *vomer*, the *nasal, turbinated, palatine* processes of SUB-MAXILLARY, and a portion of *the malar bones*," &c., the italics and small capitals I have added.

This calls to mind the exploits of a man who prided himself on being a great hunter, one of whose wonderful performances was the shooting of a deer by sending the ball through the hindfoot into the head. A look of credulity on the part of the company brought his servant to his rescue, who, after puzzling his brains for awhile, explained the phenomenon by saying, that the deer was scratching his head with his hind foot just as the ball struck him. Subsequently, the servant expostulated with his master, and begged of him not to tell any more stories in which it was "so hard to make both ends meet."

Another wonderful thing is given by said reporter. The same speaker, on the same case, is made to say that he took "one pound of paraffine and wax, previously placed in warm water, to bring it to the desirable plastic condition, was placed upon its surface, introduced into the mouth, and pressed well up against the arch," &c. Now the patient, if without a nose, was surely not without a mouth, else he could not have received a pound of wax into that orifice: but, seriously, such reports are calculated to bring ridicule upon those who speak, and are, to say the least of them, a waste of paper and printer's ink, and of the reader's time.

Respectfully, O. U. C.

PHILADELPHIA, Dec., 1863.

NOTE.—Previous to the reception of the above article, the publishers of the DENTAL TIMES had recognized the want of an editorial department, and had decided to introduce it in the present number.

### DENTAL CONVENTION.

A convention of the dentists in the towns and cities in the Merrimack Valley was held at the Citizens' Committee Room, Huntingdon Hall, Lowell, on Thursday, October 29th. Dr. A. Lawrence, of Lowell, was elected temporary chairman, and Dr. W. G. Ward, temporary secretary. The following resolution, offered by Dr. Gerry, of Lowell, was unanimously adopted:

*Resolved*, That we form ourselves into an association, under the name and style of the Merrimack Valley Dental Association.

On motion, a committee of three, consisting of Drs. Boutelle of Manchester, Gerry of Lowell, and Stevens of Haverhill, was appointed to



draft a constitution. The committee attended to that duty, and reported, which report, after slight amendment, was adopted.

On motion, proceeded to ballot for officers of the permanent organization, as provided by the constitution, and the following gentlemen were elected :

President, Dr. A. Lawrence, of Lowell; Vice-Presidents, Dr. D. K. Boutelle of Manchester, S. H. Elliott of Haverhill, E. G. Cummings of Concord; Recording Secretary, Dr. G. H. Gerry of Lowell; Corresponding Secretary, Dr. L. F. Locke of Nashua; Treasurer, Dr. S. Lawrence of Lowell; Executive Committee, Drs. E. F. Rogers and C. Heath of Manchester, F. H. Stevens of Haverhill, S. L. Ward of Lowell, J. H. Kidder of Lawrence.

The President, on taking the chair, addressed the Convention as follows :

*Gentlemen of the Merrimack Valley Dental Association* :—In accepting the flattering position which your partiality has assigned me, I should do injustice to my better feelings did I not give utterance, very briefly, to a few thoughts which the occasion seems to suggest.

The first is, to tender you my sincere thanks for the honor conferred, with the assurance that I shall endeavor to merit your approbation in the discharge of my official duties, relying, however, largely upon your forbearance and support.

Gentlemen, we meet here to-day as members of a common profession, one dignified by its literary associations and illuminated by the genius of many minds, both of the living and of the dead. A profession, honorable in its claims, useful in its practice, and, as such, endeared to each one of us. We are quite apt to judge of the merits of men, of things, and of acts, by their usefulness. Dentistry, therefore, in its present advanced condition, whether it may be traced to a remote origin, or, whether it be but the product of a day, so long as the admitted fact that it is useful exists, is entitled to our fostering care and support. A profession which a man does not respect, does not desire to see respected, and does not labor assiduously to advance, should at once be abandoned for something more in accordance with his tastes or his qualifications. It is the love of one's profession, coupled with his qualifications therefor, that makes him successful. It was the love of profession, united with unremitting diligence and study, which made Harris, Townsend and others, among the dead, what they were; and many, I might name among the living, what they are.

To a certain extent man is the creature of circumstances, but, if circumstances and not inclination have made the dentist, then has the one party committed a gross mistake, which the other should lose no time in

rectifying. But I am proud in the belief that most of our profession at the present day, scorning such an origin, have risen above that tyrant, and now hold an honorable place in the public estimation, both as skillful dentists and good citizens. In the infancy of our profession, the operator who could produce results which, at this time would be considered as barely passible, such has been the stride of improvement, was regarded as a man of more than ordinary genius. So, too, in the medical profession. Hippocrates, Galen, and others of their time, shone, not so much because they were really stars of the first magnitude, as because of the darkness by which they were surrounded. Then the physician, with his well-culled simples, went from door to door soliciting patronage, and working marvelous cures by anointing the axe that made the wound, or by causing the patient to swallow written cabalistic signs. Dentistry, too, has had its dark ages, its trunk-in-hand itinerant, whose unskillful manipulations will be long remembered by a too-confiding and outraged public. But a brighter day has dawned, and dentistry now stands the peer of any profession, while a better informed and more discerning public stands prepared, in some degree at least, to discriminate between the well qualified, conscientious and skillful dentist, and the ignorant, advertising, brazen-faced charlatan, whose race, unfortunately, has not yet become extinct. Sanctioned by legislative enactment, several Dental Colleges now adorn the land, while in Europe, the rapid advancement of the science is equally apparent and gratifying. Dental Associations, too, under various local names, have come into existence in considerable numbers, both at home and abroad, and the fact that new ones continue to be formed, while none, to my knowledge, with a single exception, have been dissolved, is pretty conclusive evidence of their beneficial tendencies. The single exception referred to, was the "American Society of Dental Surgeons," which, from some defective organism and bad nursing, after a lingering illness, died a few years ago in the house of its friends. Let us hope that no such fate is in reserve for us.

I have said that Dentistry is entitled to our fostering care and support. But how shall we care for and support the profession of our choice? Most certainly, by encouraging correct and enlightened practice, maintaining an unblemished character and urbanity of manners. By an interchange of the courtesies due each other, and the free communication of scientific facts of general importance. By refraining from and discouraging unprofessional practices of all kinds, among which detraction and calumny should be particularly guarded against, as vices militating adversely to that high tone of character and manly respect, both for one's self as well as for others, which every dentist, who lays any claim to good breeding, ought to enjoy and inculcate.

Again, by endeavoring to further enlighten our minds in accumulating knowledge relating to the science which we profess, and, in a word, by adopting the golden rule in our intercourse with each other, and with our patients, shall we best exemplify our care, not only for our profession, but also for ourselves and those we serve.

Gentlemen, allow me to congratulate you on the successful accomplishment of the object for which you have assembled, and on the happy auguries manifested for the future. Let us take high professional ground, and with "labor omnia vincit" for our motto, never fear that our efforts will be crowned with abundant success.

The Convention then adjourned to meet at 2 o'clock, P. M.

The Convention re-assembled at 2 o'clock. On motion, a committee of three, consisting of Drs. Cummings of Concord, and Boutelle and Carleton of Manchester, was appointed to report a list of subjects for discussion at the next meeting. The committee reported the following subjects: "Professional Etiquette," "Filling Teeth," "Vulcanite Work," "Nitrous Oxide," "Dental Fees," and "Mechanical Dentistry," which report was adopted.

The secretary was instructed to furnish a copy of the proceedings of this meeting for publication in the *Dental Cosmos*, *DENTAL TIMES*, and such other publications as he may deem proper.

Adjourned to meet at Lowell, on the first Thursday in May, 1864.

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#### OBITUARY.

We are called upon to record the death of Henry Leibert, D. D. S., of Norristown, Penna., a graduate of the Pennsylvania College of Dental Surgery of the class of 1861-'62.

Dr. L. was a gentleman of agreeable and pleasing address, also possessing considerable scientific attainments. The circumstances attendant upon his decease are exceedingly painful. We are informed that while prosecuting some experiments with a new kind of gunpowder, of his own invention, an explosion occurred, by which he was so much injured, that death in a few hours was the result.

G. T. B.

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RECENTLY having had occasion to bend a heavy complicated piece of hard rubber, I endeavored to do so by the method usually pursued, by oiling and holding it above the flame of a spirit lamp; this overheated the thin parts before the thick portions were pliable. I then took a vessel containing lard oil, and heated it until strips of rubber inserted in the oil became pliable; the parts required to be bent were then immersed in the oil, and after remaining there a few minutes were easily shaped without injury. I throw out this suggestion as it may be useful to others.

E. W.

## Editorial.

### CONTRIBUTIONS TO THE MUSEUM.

The Faculty would respectfully return their thanks to the following gentlemen, to whom they are indebted for recent contributions to the museum of the Pennsylvania College of Dental Surgery.

John R. McCurdy, of Philadelphia, a beautiful specimen of petrified wood, two rich specimens of gold-bearing quartz, and one of silver ore, all from California.

Henry Cowie, of Detroit, Michigan, a fine specimen of native silver in copper, two of native copper, and one of sulphuret of copper, from Lake Superior.

Dr. L. W. Bristol, of Lockport, N. Y., a very fine beaver's head and tail. These are of exceeding large size and are very difficult to obtain—hunters not being willing to be bothered with them—we therefore feel under special obligations.

James W. White, of Philadelphia, a fine specimen of quartz.

Dr. L. Buffett, Cleveland, Ohio, infantile superior and inferior maxillary, showing the teeth germs.

Alexander O'Callaghan, Cuba, the following preparations: chipmunk or biting lizard, alligators, centipedes, tarantulas and scorpions; also a large collection of valuable minerals.

C. E. Baxter, Maine, a peculiar pair of extracting forceps.

Dr. S. S. Nones, Wilmington, Delaware, a large contribution of valuable minerals from different parts of the world.

Dr. Wm. H. Hoopes, Baltimore, Maryland, plaster models of case of facial, nasal, and palatine defect described in present number of this Journal.

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THE advertisement of our friends, W. A. Duff & Co., will be found in our columns—this firm, though a new one, is composed of gentlemen of energy and recognized ability in their business. Dr. J. J. Griffith, for many years demonstrator of the Pennsylvania College of Dental Surgery, is a practical tooth manufacturer, and, recognizing the wants of the profession, will make every effort to supply them. We bespeak for the new firm a liberal patronage.

G. T. B.

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THE ATTENTION of our readers is directed to the advertisement of Dr. B. Wood's improved plastic metallic filling. The improvement consists in furnishing a material that forms a denser and harder filling than that formerly prepared by him. We have tested its working qualities, and are much pleased with the result.

G. T. B.

THROUGH the kindness of Mr. A. S. Reber, I lately received some moulding sand, obtained by him from near Bellefonte, in this state. Dr. Wingate called my attention to it last summer, and extolled it as being superior to ordinary moulding sand.

This sand is of a buff color, very fine, and when pulverized soapstone is employed for parting, instead of charcoal, it may be used without becoming discolored. Mr. Reber recommends the addition of a small portion finely powdered asbestos to give it additional toughness. Upon analysis, I find it composed of 92 per cent. of carbonate of lime, and 8 per cent. of silica and alumina; ordinary moulding sand is composed of 93 to 96 per cent. of silica, and balance of alumina and oxide of iron. It takes a sharp, clean mould, parts well, and from the trials I have made with it can safely recommend it as being greatly superior to ordinary moulding sand. A mould of a finely wrought bas-relief medal in this sand produced a zinc cast, wherein all the fine lines were delineated.

E. W.

TO REMOVE the wiry condition of pluggers after they have been pointed, plunge them several times into a piece of wood or lead, the last named accomplishes the purpose excellently well.

G. T. B.

### PUBLISHERS' NOTICE.

The present is the third number of the DENTAL TIMES, and though at the outset some misgivings were felt as to its reception by the profession, yet the flattering encouragement it has received, convinces us that the DENTAL TIMES is calculated to be a useful addition to the periodical dental literature; the publishers are therefore stimulated and impelled to increased exertion. Thus far we have sent the Journal to all dentists whose directions we possess in the United States, distributing in the loyal states 4000 copies, and to those who were non-subscribers, have—in consequence of a recent act of Congress—pre-paid the postage on each number.

While anxious to publish and distribute a large edition, we cannot be expected to continue gratuitous distribution, particularly, when the high price of paper, printing, and all the auxiliaries of publishing a Journal are taken into consideration.

We, therefore, would urge the recipients of this Journal to become subscribers. The DENTAL TIMES is published at the low price of ONE DOLLAR per annum, and we would ask our friends to assist us in our list, that our future editions may be equal to our present one. Those who enclose \$1 to Dr. C. N. Peirce, 501 North Seventh street, Philadelphia, will receive each number without delay.

# THE DENTAL TIMES.

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VOL. I.

PHILADELPHIA, APRIL, 1864.

No. 4.

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## PROFICIENCY AND SUCCESS.

BY J. K. W.

Every art, science, or knowledge admits of different degrees of proficiency. There is no practice or avocation that cannot boast of its adepts, or despair of its bunglers. Like advantages do not vouchsafe equal acquirements. Experience does not develop similar training in different cases, and the same opportunities are not fruitful of coincident results. The trite saying that "practice makes perfect," cannot withstand the testimony of the world. It may be the handmaid of improvement, the key to a certain measure of skill and facility, but other conditions are involved in the attainment of true mastership. A good judgment will prove its superiority over a poor one, under any circumstances. Excellent parts, and that which we term the "happy faculty," may win laurels which the inapt hand cannot grasp, though worn by a lifetime of experience. Genius sometimes discloses itself in a very small way, but its presence is unmistakable.

All cannot be masters. Mediocrity creeps into every profession, and unskillfulness into every art. But whatever place or position, circumstance, choice or the fates may have given a man, it should be his business and care to make the most of it. The better he serves it, the better it will serve him. The advice of Franklin is worthy of a constant place in the memory: "Endeavor to be the *first* in your trade or occupation, whatever it may be." Such endeavor will invariably blossom into fruit, and challenge the increasing respect and attention of others. Success sometimes depends on apparently trifling things. And to succeed is, or should be, the aim of all in their chosen occupations. If one cannot achieve equal prosperity and ascendancy with another, it is far from being a reason for refraining from generous effort, thereby courting failure.

Whether dentistry has within its pale any poor practitioners or not, it may be safe to say that all do not enjoy the same repute for excellence. In this, as in other branches of art and practice, the populace are always discriminating. They seek out the recipient of their praise and the victim

of their animadversion, freely bestowing encomiums and sparing not their criticism. Merit cannot slumber in the lap of oblivion. Demerit is a stranger to the felicity of repose. A good reputation finds its way into channels that lead to the ears of all, and the fortunate possessor realizes its value. It cannot go abroad without reaping a harvest. A bad reputation takes the same road, and every tongue volunteers in giving it publicity. It acts upon the sources of patronage like a frost among the blossoms, and a meagre return shows how exacting is the popular judgment and how scrupulous its choice. The former finds protection everywhere, and needs no printed advertisement as a counterpart. The latter in vain enlists the aid of such extraneous helps. A good reputation is the magnet that draws a substantial patronage, and the gaining of this is the culmination of success. Where the door is open for competition, no man can afford to have an indifferent name.

A thorough knowledge of the art and science of dentistry and its collateral relations, with the skill and capacity to give it intelligent application, constitutes the basis of good repute. This is the reward of proper exertion, and a well directed earnestness towards becoming master of the avocation. To be satisfied while there is room for improvement and increased skill, is simply to make ill-success a foregone conclusion. One who is anxious to succeed cannot afford to be ignorant of any branch or part of his profession, nor awkward in its practice. Should there be a doubt in his own mind concerning his proficiency, or a feeling of assurance respecting the completeness of his skill, let him compare his own performances with those of acknowledged adepts. This is a sure way of ascertaining the exact merits of his qualifications, provided a judgment of the matter is reserved for others. An incentive for renewed exertion may be thus afforded, and a higher degree of aptitude prove its value and importance. Public appreciation is the practical test of merit, and let the young dentist so shape his course and perfect his acquirements as to deserve the confidence of the community, and it will not long be withheld. In whatever corner he may choose to locate himself, he will surely be ferreted out, and made to contribute to the popular demand.

There are more reasons than one why every dentist should be a good one. First, on his own account. His vocation is the source of his well-being in society, and a guarantee of the daily necessities, conveniences, and pleasures of life. The more thorough his proficiency, the more fruitful will be his calling of good and substantial results. Second, on account of his patrons. These deserve the exercise of his best judgment and skill. It is needless to suggest instances where persons have been the victims of carelessness, ignorance, or indifference under the hands of the operator. If the profession is too important to be trifled with, it follows

that those who seek its aid and advantages should not become the injured subjects of negligence or inattention. The performance involved should justify the confidence reposed. Third, on account of the profession itself. If it is worth an earnest pursuit, it is worth being regarded with a degree of interest and pride capable of sustaining its reputation, and elevating its standard. The reputation of an art is in the hands of the artist. A profession that is characterized by a high degree of advancement in its various operations, reflects upon its members a national credit and praise. There is a consonance between the standing it enjoys and the estimation in which they are held inclusively, and a heedless disregard on their part towards perfecting themselves in their art and practice, is prejudicial to its universal repute. Dentistry is a worthy and beneficent profession, and it behooves its practitioners, whether young or old, to see that its fame receives no detriment at their hands, but that it shall attain such a state of perfection as to merit a world-wide approbation.

PHILADELPHIA.

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## CAOUTCHOUC.

ITS HISTORY, PROPERTIES; ITS COMBINATIONS FORMING HARD RUBBER,  
AND THE MANNER OF WORKING IT FOR DENTAL PURPOSES.

BY E. WILDMAN, M. D., D. D. S.

(Continued from page 118)

The few plants described in the preceding number are the principal of the many that yield caoutchouc of which we have an authentic description.

The description of the *Urceola Elastica* of the Indian Archipelago, given by Mr. Howison, accords very nearly with that of the vine mentioned by DuChaillu as producing the caoutchouc of equatorial Africa, and would lead to the inference that they either belong to the same species or are closely allied to each other.

According to the best authorities, the milky juice of the *Ficus Elastica* of Chardwar, is better when drawn from the old than from the young trees, and richer in the cold season than in the hot. It is extracted by making incisions across the bark down to the wood, and may be drawn from the base of the tree to the topmost branches, the quantity which exudes increasing with the height. This bleeding may be repeated every fortnight. Somewhat more than forty-two pounds of juice is reckoned as an average yield of each bleeding of one tree. This bleeding should be confined to the cool months, so as to allow the tree to recuperate during the hot season.

Mr. Griffith says: "that the richest juice is obtained from transverse incisions into the wood of the larger reflex roots which are half exposed above ground, and that it proceeds from the bark alone.



"Beneath the line of incision, the natives of Assam scoop out a hole in the earth, in which they place a leaf of the *Prynium Capitatum* rudely folded up in the form of a cup to catch the juice as it exudes."

A writer, in Para, giving a description of the method of obtaining caoutchouc in that vicinity, says: "the Indians unite together generally in a pretty good number, and proceed to discover some spot in the virgin forest where there are rubber trees. As soon as they have found such a place, they cut paths through the wood to it. This is the sole difficulty experienced in procuring rubber, but it is a great one, as, owing to the fertility of the soil, the vegetation forms an almost closed mass, and every step must be gained by the axe. As soon as this labor is accomplished, they make an incision in the tree, at the height of a man's body from the ground, and arrange rude bowls of clay which holds as much as a tumbler, stick the bowls to the trees a little below the incision, and collect therein the milk running out; such a bowl is filled in about three hours, if the tree be fruitful.

"When the first cutting ceases to yield, they make a second one some distance lower down, and so on till they have exhausted the milk in the tree, which is done by making in all four incisions, at equal distances; they then pour the milk into larger vessels, gather heaps of Urucari or Inaja nuts, which yield a thick oily smoke, and set them on fire; they now begin the manufacturing process by covering the wooden forms for sheets, long and flat bottles, &c., with clay (in order to be able to detach the rubber easily afterwards,) dip the forms into the milk, and hold them over the smoke. As soon as the milk is dry, they dip them a second time, and so on, until the rubber is of sufficient thickness; they then take it off the form, and the rubber is ready for exportation.

"All rubber is manufactured in this manner, the difference in quality depending upon the greater or lesser amount of clay and dirt which has become mixed with the milk. The first manufactured is the best (fine;) and the last, made of milk adulterated with clay which has fallen from the different forms already dipped in, is the worst.

"A tree cannot again be made use of for two years, as it requires that time to recover its exhausted strength.

"There is another way of getting the milk, which is, however, forbidden by the Government, as it destroys the tree. This is, to bind the tree at the top and bottom with willow twigs, and then draw off all the milk, at once, with incisions.

"In the smoking process they have tried different qualities of coals and woods, but without success. Small lots of fine rubber, not smoked, they sell here as mixed; this rubber comes from the interior of the Amazon province where they do not have the above mentioned fruits, and in con-

sequence cannot smoke the rubber perfectly. All Indians give the preference to the nuts."

The juice, as it exudes from the tree, is white or a pale yellow, and a thick creamy looking substance.

According to M. Faraday's approximate analysis, it is composed of	
Caoutchouc .....	31.7
Albuminous precipitate .....	1.9
Peculiar bitter coloring matter, a highly azotized substance .....	7.13
Wax, a trace.	
Substance soluble in water, not in alcohol .....	2.9
Water, acid, &c. ....	56.37

Dr. Ure, in his analysis, found no albumen, and, therefore, considered that it is not a necessary constituent of the juice.

The specific gravity given by Faraday is 1.012.

Dr. Ure found the specific gravity 1.041 of one sample that yielded 20 per cent. of solid caoutchouc, of another 1.017, which yielded 37 per cent. of solid caoutchouc.

Faraday, in experimenting with the juice, found that it mixed freely with water, and that after remaining at rest, a separation took place; a creamy portion rose to the top, whilst a clear aqueous solution remained beneath. He adopted this means to wash the caoutchouc, and remove from it the other substances which had been generally involved in it to a greater or lesser extent during its coagulation.

He added to the juice about four volumes of water, and repeated the washings until the water came away pure, which required four or five washings.

The caoutchouc thus obtained, was at first a soft white solid, almost like a curd, which by pressure exuded much water, became more compact, acquired elasticity, but was still soft, white and opaque. This opacity is due to the water enclosed within its mass, as a further exposure to the air allowed the gradual dissipation of the water, and then the caoutchouc in its pure dry state was a perfectly transparent, colorless, and elastic body, except in thick masses, when a trace of color was perceived. The juice experimented upon by Faraday was an American product.

Dr. Ure, in his experiments with samples of the juice from Assam and Java, found that by mixing the juice with a little more than its own bulk of water and boiling the mixture, the caoutchouc separated in a spongy mass, which formed good caoutchouc by pressure between the folds of a towel. By this process the aloetic extract, and other vegetable matters which congregate in the caoutchouc of commerce and contaminate it, are separated, and an article nearly white and inodorous was obtained. In

the brown solution which remained, after the caoutchouc had been separated in a spongy state, from 100 grains of the richest juice he obtained four grains of concrete aloes.

For preserving the juice from decomposition Wm. Johnson obtained a patent in England, in 1853. The inventor of this method appears to be Henry Lee Norris, of New York.

When the liquid is collected and before it has time to sour from atmospheric exposure, that is to say within three or four hours from the time it exudes from the tree, it is strained into a tin or glass vessel, then is added one ounce of concentrated aqua ammonia to every pound of the juice. When thoroughly mixed, it is put up in air-tight cans or bottles, and so prepared, will remain unchanged a great length of time. When this liquid is poured on a suitable receiving surface of the desired size and form, and subjected to a heat of from 75° to 100° F., to produce a slow evaporation of the aqueous portion, there is procured a solid mass, very elastic and tough, and comparatively transparent or translucent.

These experiments show very conclusively that if a proper method of preparing the juice was adopted, instead of the black caoutchouc of commerce containing aloetic matter, and carbon from the smoking process, we should have an article nearly colorless and transparent.

Much of the caoutchouc of commerce is in the form of shapeless masses. The natives dig a trench in the earth at the foot of the tree which is tapped, to collect the milk as it exudes from the tree. In this rude mould it coagulates, and a part of it is in the form of flasks, slippers, figures of animals, &c. To obtain these forms the natives make a model of the object in clay, dip this model in the juice, when this coating becomes solid, again repeating this process until a coat of the desired thickness is obtained. The mould is then broken and the fragments removed through an orifice left for this purpose.

Du Chaillu states that the natives in the equatorial regions of Africa collect the juice in wooden cups and then pour it into wooden moulds to solidify.

Most of the caoutchouc of commerce is so contaminated with earthy or debris of vegetable matter, introduced by accident or design, that it is not applicable for any use until it has undergone a previous purification.

The crude caoutchouc is purified by submitting it to the action of cylinders with teeth turning in opposite directions, and with unequal velocities, which causes it to undergo a kind of mastication. A small jet of water flows through the apparatus, which prevents the caoutchouc from coalescing and washes out the foreign matter. After the vegetable debris and earthy matter are thus removed, it is masticated dry and then placed in moulds and powerfully compressed to free it from cavities and air bubbles.

These blocks may be cut into sheets or smaller blocks by submitting them to the action of knives moved very rapidly by mechanical action, and the edges of which are kept constantly wet by a jet of water.

During the operation of mastication, or kneading, great heat is disengaged in the alternate condensation and expansion of the caoutchouc. Although the water is cold when it trickles in, it soon becomes boiling hot, and when no water is admitted, the temperature rises much higher.

As caoutchouc suffers very little permanent diminution of its volume by the greatest pressure, this great evolution of heat must be ascribed to the violent intestine movements excited throughout the particles of the elastic mass during the masticating process.

*Composition.*—Caoutchouc is a hydro-carbon, and, according to the analysis of Dr. Ure, is composed of

Carbon,	-	-	-	90
Hydrogen,	-	-	-	10

being 3 eq. C. to 2 eq. H.

Faraday's analysis does not give so much carbon, being,

Carbon,	-	-	-	87.2
Hydrogen,	-	-	-	12.8

making nearly, C<sub>6</sub>, H<sub>7</sub>.

Its specific gravity is 0.925.

*Properties.*—In a recent state of coagulation, and while still in a pulpy condition, caoutchouc possesses a degree of plasticity which admits of its receiving, by the means of moulds, the most varied forms.

Caoutchouc is soft and elastic at the ordinary temperature of the atmosphere, but at the freezing point acquires hardness nearly equal to that of wood. At a temperature of 100° F., it softens without losing its shape, and two freshly cut pieces may be united without leaving a trace of the junction.

Caoutchouc from different sources varies very much in solidity. In works on Chemistry, the melting point is generally set down as a little above the boiling point of water. Dr. Ure says it melts at 248° F. In an experiment upon the effect of heat upon rubber of good quality, I found that at 280° F. it became adhesive, and when cold the elasticity was not impaired. When heated up to 340° it was reduced to a pasty mass, and when cold the elasticity was not entirely destroyed. When melted it will stand a much higher heat without undergoing any further change. When cooled it will not return to its original state but remains semi-fluid.

Melted caoutchouc forms a very good chemical lute, as it adheres readily to glass vessels, and withstands the corrosive action of acid vapors.

Caoutchouc is very inflammable, and burns with a bright flame, giving off a dense volume of black smoke. The natives of the countries which produce it use it for torches.

At 600° F. and upwards, by distillation, it yields several hydro-carbons, varying in their boiling point from 90° to 680° F.

*Caoutchoucine*, one of the products of this destructive distillation, is one of the best solvents of caoutchouc. Its specific gravity is less than sulphuric ether; is extremely volatile, yet in the state of vapour is heavier than the most ponderous gases, and the vapour may be poured from one vessel to another like water.

Neither chlorine, sulphurous acid gas, muriatic acid gas, ammonia, nor fluosilic acid gas effect it. Cold sulphuric acid acts upon it only slowly. Nitric acid produces the same effect without it is strong. The strongest potash ley does not dissolve it even at a boiling heat. It is insoluble in alcohol. Water will not dissolve it. By long boiling in water it is softened, swells and is more readily soluble in its proper menstrua, but by exposure to the air it speedily assumes its former volume and consistency.

Caoutchouc is softened and dissolved in the *fixed oils*, and on exposure to the air does not return to the solid state again.

*Spirits of turpentine* dissolves it, but on evaporation the caoutchouc remains in a clammy state. In common ether it softens and swells, but does not dissolve.

*The best solvents are,*

- Ether deprived of its alcohol,
- Bi-sulphuret of carbon,
- Coal naphtha,
- Chloroform, benzole and
- Caoutchoucine.

Caoutchouc, when acted upon by its solvents, first expands greatly before diffusing itself through the solvent. Therefore it requires a large quantity of the solvent in proportion to the caoutchouc to produce a fluid solution.

By the addition of from five to fifty per cent. of alcohol to the menstrua, caoutchouc may be brought into a pasty mass with comparatively little expansion.

M. Gerard, of Paris, in 1850, obtained a patent in England for treating gutta serena and caoutchouc in this manner. By the addition of alcohol, he asserts, the particles of the pasty mass are rendered less adherent among themselves, and are easily separated by pressure, retaining the

form resulting from this pressure, and not returning to their ordinary form. On the solvent and alcohol being evaporated, the caoutchouc will return to its original state.

Caoutchouc is acted upon by sulphur when the combination is heated in a manner that is not yet explained by chemists.

Sulphur may be incorporated with caoutchouc by immersing it in sheets in melted sulphur. The sulphur penetrates quite through the caoutchouc, and the color of the caoutchouc will be changed throughout to a yellowish tint.

Sulphur in a fine powder may be mixed with caoutchouc by dusting it on the sheets and passing them through heated rollers, repeatedly, until the whole is thoroughly incorporated.

Sulphur may also be incorporated by the means of a solvent. In this case the desired quantity of sulphur is dissolved in the solvent, which is next added to the caoutchouc, and when the solvent is evaporated, will leave combined with the caoutchouc the requisite quantity of sulphur. Or the caoutchouc may be reduced to a semi-fluid mass by one of its solvents and finely pulverized sulphur then incorporated with it.

These mixtures still retain all the solubility of the caoutchouc in the different menstrua. But when exposed to a certain degree of heat they unite and form a compound possessing properties entirely different from ordinary caoutchouc. It is no longer soluble in the menstrua that dissolves caoutchouc, but is impregnated with them by contact, and swells out like animal membrane when moistened by water; resuming its primitive properties when dried.

It no longer becomes rigid when exposed to the cold, nor does it unite with itself when cut, and resists, without any alteration, a temperature which would have sufficed to transform ordinary caoutchouc into a sticky mass.

Sulphurization or vulcanization may be produced by the action of the chloride of sulphur, diluted in 50 or 60 parts of bi-sulphuret of carbon at a proper temperature. This is done by dipping the pure caoutchouc in the above solution, and allowing it to remain about two minutes, then removing it when dry; repeat as often as necessary to produce the required effect. By this means thin pieces of caoutchouc can be perfectly vulcanized.

According to M. Gaultier De Claubry, if the flower of sulphur and dry hypochlorite of lime be mixed together, and this mixture incorporated with the caoutchouc paste, vulcanization may be effected at the ordinary temperature, or at a gentle heat. By this process it is possible to obtain caoutchouc of any thickness uniformly vulcanized.

TO BE CONTINUED.

## TOBACCO AND TEETH.

BY JOHN B. YOUNG, D. D. S.

Does tobacco exercise any influence on the teeth? This question I propounded to myself after reading the brief remarks made on tobacco at the Odontographic Society of Philadelphia, in July, 1863: though it was not the first time my attention had been arrested by the subject, tobacco being my first great stumbling-block when I commenced practice, as will be seen in the sequel.

To treat my subject properly, I shall have to divide it in two parts: first, effects of smoking; second, effects of chewing.

Many, no doubt, will be surprised when I announce that on the teeth of any temperament, smoking has no preservative or destructive effect whatever; it neither hastens nor retards decay. To confirm this unrestricted opinion, I have in my note book sufficient evidence, taken not only from the natives, but from foreigners, and in no country, and under any circumstances, could I find a more convenient season for investigating the present subject. Besides the foreigners, nearly all the native males smoke, some being inveterate consumers of, not steeped cabbage leaves, but "Havana segars" and "Virginia plug;" hence, I have under observation great smokers, medium smokers, and non-smokers, my experience being extensive and varied. A brief view of some cases will, perhaps, help me in impressing the fact. 1st. Male, aged 27, five years ago had one of his molars extracted; he had then never tasted tobacco in any form; was recommended by an old sailor to its use as a preservative; he commenced, firmly believing he would never again have pain; nine months ago he came to be "overhauled," as he said: he had toothache and could not tell where located; on examining, found he had lost four molars and two bicuspids: the remainder of his teeth being very much stained, gums in an unhealthy condition and nine fillings to be put in, one being a nerve exposure, though not the cause of the suffering, for the receding of the gums from several teeth had caused periostitis. This case is evidence of tobacco neither preventing nor retarding decay. 2d case—Male, aged 24, commenced smoking a pipe at the early age of sixteen; has continued, smoking sometimes as many as nine pipe loads during the day; his teeth are perfectly sound, gums unhealthy, absorption having commenced. This is a particularly interesting case, and I have an extensive note, not only on this point which it clearly proves, "tobacco not causing decay," but on the effect produced on developement, physical and mental. These two are only evidences of the daily occurrence. I have seen cases where young men have discontinued the practice and their teeth still continue to decay; others, their teeth remain healthy and far more cleanly.

The evil result to the gums is what the dentist first notices, and when

carefully thought of, must strengthen him in his endeavors to cry down the filthy habit. That it has a most injurious effect, no one, who has practiced for one year in a community where tobacco is used, and seen gums inflamed and receding, particularly from the first superior molars, can deny. In every case, I have noticed the receding of the gums; and veteran smokers, when they don't lose their teeth from decay, always lose them from gomphiasis, caused by smoking. As an example, a gentleman about fifty-six, called on me to have his mouth examined. "I don't know what is the matter, my whole mouth and system are disordered, and I can't enjoy my meals," were his words. On examining, found the first right inferior molar decayed, the remainder of his molars, eleven in number, entirely free from decay, but so loose that I could have turned them out with my finger; extracted the decayed molar, and told him if he wanted to save the remainder, he must immediately leave off smoking; I would then try my skill on the others, of which I had some hopes. I held out the inducement of recovered health, which was once robust, but is failing; he has no appetite, loathes the greatest delicacies, and can alone cling to his segar; all my endeavors failed to induce him to break off poisoning himself. Sometimes he tells me, "I think I will leave it off, for I am almost convinced it is the cause of my ill health, but when I leave you and go home, I find my son, an M. D., smoking, and I join; he assures me it does me no harm." Certainly when we have an ignorant physician with whom to deal, a dentist can scarcely be heard; as we have not yet arrived at the height which will enable us to speak with success against the ill usages winked at by the medical profession; though I am confident that the time is not far distant when our voices will be heard and heeded; no longer, will erroneous ideas be clung to because the vast majority of the medical gentlemen, who will not trouble themselves to read and learn, countenance them, and because it agrees with the people's wishes. Let us remember, to gain the elevation desired, we must not indulge in chimeras, puzzling the understanding of the young in the profession, but to give plain facts where we can, and philosophize only on a sound basis; let us work for the good of mankind partly, and not for our pockets exclusively; let each step we ascend be a spur to drive us to another and another, until, when our years are drawing to a close, and our brain reels with pleasurable emotions, confident of having used and increased our talent, we will not then give up, but to goad on those we leave behind, with our expiring breath, we'll cry "EXCELSIOR."

Our next division is chewing. While it exerts no deleterious effects on the gums it will undoubtedly assist decay; though some of our number have stated their belief in its preservative quality, we must put it down to want of thought and not of philosophy—chewing, as the gentleman



would lead us to believe, preserves the teeth from the amount of saliva generated; but we must remember that the saliva is not retained, but ejected at intervals of ten minutes; thus the chewing not only produces a vitiated saliva, the blood being incapable of supplying it in such quantities and with its usual richness, but it deprives the system of the small amount of salts which it contains, thus constantly draining and never supplying. Besides this physiological fact we may observe that chewers have worse teeth than those who do not masticate the weed; for instance, the best teeth in this island are found among the African population who do not chew. On the contrary, among the native negroes, whose lives and subsistence are the same precisely, we find the greatest number of decayed teeth. Again, among our inter-marine population, composed promiscuously of whites, Africans and native blacks, who are not like seamen of other countries, continually on the ocean, months or weeks, but are seldom off shore more than two days at a time, and constantly live on fresh food, their sleeping apartments are more healthy than their huts on shore, they have the same winds and far better fed, yet they all have very bad teeth. To what can it be attributed, if not to tobacco, for they are inveterate chewers? Look at the chemical constituent of tobacco, which, according to reliable authors, consists of, in 10,000 parts, 57 of free mallic acid, besides malate of lime, malate of ammonia, as well as free nitric and citric acids, and tell us what effect it will exercise on the teeth, when stuffed in every crease and crevice in and between the teeth, plenteously mixed with articles of food, (for chewers seldom clean their teeth, satisfying themselves with rinsing,) decomposition takes place of course, acids are set free, which immediately combine with the lime of the teeth, a slow process but sure.

Having shown the effects on the external parts of the teeth, we will now go a little further and see the difficulties with which dentists have to contend, from the tobacco community. Diagnosing, which must always precede an operation, whether for extracting or filling, is rendered difficult to the novice, as persons who chew or smoke have their nerves so deadened by the nicotia, that on probing such a decay, he would be led to suppose it only a case of sensitive dentine—a mistake which I made with the first case I had: so covered was the nerve that after cleaning the cavity out as well as I could, and placing a pledget of cotton, saturated with creasote, and packing another firmly over it, my patient came back in forty-eight hours, and said he had experienced no pain. After filling with gold, patient expressed his belief in the success of the filling, but a month had hardly elapsed when he came back raving with toothache. As the weather was very mild and dry, I knew it could not be periostitis; so I removed the filling, and found what I supposed to be a new deposit of dentine when I

filled, was nothing but the animal tissue covered and blackened with fine bits of tobacco. My practice now, when a tobacco patient presents himself with a sensitive decay, is, to cleanse out the cavity as well as I can, and apply a paste of creasote and arsenic, the combination of morphine causing the pulp to be difficult in destroying, smokers and chewers never having sensitive teeth.

NABBAU, W. I.

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## FATAL RESULT FROM THE INHALATION OF NITROUS OXIDE.

BY JOSE. R. BRUNET, D. D. S.

On the 11th of January, 1864, Mr. Samuel P. Sears called at my office for the purpose of having two right lower molar teeth extracted. He asked to have the "Laughing Gas" administered, and I proceeded so to do, in the same manner as for any other patient. His general appearance was good, and he told me he had taken chloroform, but did not state at what time, or by whom it had been administered, as I was very busy at the time. The teeth were extracted at 4½, P. M., he being placed under the influence of the gas, but not thoroughly. He did not move during the time of extraction, and he appeared to recover in about five minutes, and as I did not observe any unusual symptoms during or subsequent to the operation, I left him in the chair with an assistant, and went to an adjoining room and administered the same gas to a lady. After so doing, went back to Mr. Sears, who told me he felt sick, and that he had been taken with an attack of the diarrhoea, also expressing a desire for fresh air. Perceiving that he appeared to labor under some difficulty in respiration, Dr. Dane was immediately sent for, who examined him and found his lungs greatly congested. I went and notified his parents, and when I returned he was dead.

A post-mortem examination was made next day, at 12 o'clock, by Dr. George B. Bouton, in the presence of Dr. Dane and others. Both lungs were found bound by old pleuritic adhesions of an exceedingly firm character, the right much more than the left, which was about three-fourths covered. The only portion of the lung tissue which seemed to be available for the purpose of oxygenation was the lower half of the right; all of the rest was so covered with tubercular deposition, patches of hepatization and vomica as to seem comparatively useless. There was also six cavities in the left lung, each of which would contain an average of half a fluid ounce. There was also a mass in the lobe of this lung of an almost cartilaginous consistency, of the bulk of about three ounces, made up apparently of tubercular depositions. All the available portions of the lungs were found greatly congested; a portion of the apex of the right lung was free from blood, its tissue being so changed as not to admit of engorgement of blood.

or the permeation of air. There was no well marked change in any of the other organs examined, except in the right kidney, a drop of pus being noticed in the pelvis.

Death occurred from congestion of the lungs, occasioned by the nitrous oxide. The gas was pure, having been administered previous to, and after the accident, to different parties. I have also administered to hundreds of patients both ether and chloroform, separately and combined; have also exhibited the nitrous oxide ever since it has been used as an anæsthetic for the purpose of extracting teeth, and though some have exhibited unpleasant symptoms, have never had them, except in this instance, to be attended with fatal results. I have understood from a member of the family of Mr. Sears, that his physician thought it doubtful whether he would last through the winter, as his lungs were so greatly diseased.

I now recommend a thorough examination of every patient to be made before administering the gas, its effects being, I believe, where the system is diseased, the same as that of any other anæsthetic.

NEW YORK, JAN. 15, 1864.

### DENTAL PERIOSTITIS.

BY EDWIN C. BAXTER, D. D. S.

Dental Periostitis, or inflammation of the alveolo dental membrane, may arise from pressure, as in an improperly articulated artificial denture: irritation of foreign substances, such as gold or other material used in filling approximal cavities being pressed under the gum and carelessly allowed to remain; accumulations of tartar, disintegration of a nerve, the administration of mercury, and various other causes.

Inflammation is an unnatural condition or disease of a part, characterized by an abnormal quantity of blood in the capillaries, and an increase of heat, pain, tumefaction and redness. The increase in temperature is due to increased rapidity in the oxidation of the tissues. Pain is occasioned by the condition in which the nerves are placed by the deviation of the parts from the normal state. Swelling arises from the dilatation of the vessels and exudation of lymph; the dilatation of the vessels also accounting for the redness, the capillaries in their expanded condition allowing the passage of the red corpuscles of the blood. The alveolar periosteum contains some cartilaginous fibres, and is thicker than the periosteum of any other portion of the body. When this becomes the seat of inflammation it swells, and being confined between bony, unyielding walls, the tooth is partially forced from its socket, becoming elongated. At the commencement of the inflammatory action, a slight uneasiness will generally be experienced, which diminishes when the tooth is gently pressed into its socket, but immediately returns upon the removal of the pressure.

The inflammation continuing, the gum becomes tumefied and tender opposite the fang of the affected tooth; there is a tendency to ache when the temperature is considerably increased or diminished, and the pressure which previously gave relief, now becomes absolutely intolerable, and the patient will be liable to violent attacks of pain in the head and face.

Inflammation may be brought to terminate by resolution, which is a return to health, the lymph being absorbed and the inflammatory action subsiding before any morbid change of structure has been effected; and to produce this result various modes of treatment have been adopted, the peculiarities of the case in hand suggesting the proper remedy.

Periostitis is frequently induced by the disintegration of a pulp, in which case the nerve cavity should be opened and thoroughly cleansed to the apex of the fang, after which, a treatment of creasote, nitre, or a solution of creasote and iodine may be used effectively, or local depletion may be resorted to. When periostitis is induced in a sound tooth by pressure, or the presence of a foreign body, the irritating substance should first be removed, then the gums contiguous to the affected tooth freely scarified; or counter-irritation may be induced by making an incision through the gum near the apex of the fang and inserting a pledget of cotton and allowing it to remain. In periostitis caused by pressure in inserting a fang filling, either of the previous methods may be employed, or the application of one or two Spanish leeches to the gum will prove effective, the hemorrhage from the leech bite being very profuse, owing, it is said, to a peculiar secretion left in the wound by the leech, which prevents the coagulation of the blood. Local depletion is the most effective remedy, the efficacy of the leech being due to the quantity of blood abstracted. If the inflammatory action be allowed to progress, alveolar abscess, or termination by suppuration will ensue, when the periosteum will separate from the end of the fang forming a sac, coagulable lymph will be thrown out, the sac will enlarge, and the bony walls of the alveolus be removed by absorption for its accommodation.

Pus is first developed in the centre of the mass of lymph by the disintegration of exudation corpuscles, the idea of its being secreted by the pyogenic membrane being generally discarded. As inflammation progresses, lymph continues to be thrown out and degenerated until an opening for the discharge of the pus is effected, which may be either through the canal of the tooth or the gum; or a fistula may be established through the substance of the cheek. In the superior molars, the plate of bone between the ends of the fangs and the antrum being in some cases very thin, the discharge may effect its escape into the antrum, or the sac itself may protrude into and lay upon the floor of this cavity. In such a case the tooth should be extracted, and the antrum thoroughly cleansed by injecting tepid water through the alveolar opening, and this, in a majority

of cases dependent upon the teeth, will be all the treatment necessary to insure a speedy return to health.

A patient, at present under my charge, of a marked scrofulous diathesis, has suffered with diseased antrum for two years. In this case the tooth was extracted, and an entrance to the antrum, through the alveolus, easily effected. Through this opening the antrum is treated with a solution of nitrate of silver, three grains to the ounce of water, and occasionally diluted Labarraque's solution. This case is daily improving, the offensive odor having nearly disappeared and the discharge diminishing and becoming of a healthy character.

The formation of pus is indicated by the subsidence of acute pain, a dull throbbing ache being experienced instead. The gum also becomes red and tumefied, and upon pressing it with the finger, it will impart a peculiar fluctuating sensation. The abscess should now be freely opened, all the pus evacuated, and a tent of cotton inserted, which should be allowed to remain. Upon the discharge of pus the swelling generally subsides, and though the patient may experience no inconvenience for a time, he is liable to a recurrence of the inflammatory action, when lymph will again be poured out and disintegrated, until the sac is refilled and discharged as before; or there may be a slight but continual discharge for years, unless some means for its prevention be employed. Strict attention is required from the commencement of inflammation; for when it terminates by suppuration, the formation of pus is sometimes very profuse, tunnelling the bone from tooth to tooth, until an abscess of large extent is formed, resulting in death and exfoliation of more or less of the bone, according to the degree to which it is involved. The pus in such a case is generally of a dark color, and almost insupportable odor. Another result of suppuration is a fistula through the cheek, producing a troublesome sore, and when healed a deforming scar remains. The course of a fistula when healed will frequently feel hard like a cord when pressed by the finger. This should be divided by passing a lancet beneath the hardened portion, and cutting from below, upwards, completely severing it; and when the adhesion is considerable, a tent of cotton should be placed between the edges of the wound, thus preventing their approximation and partially relieving the deformity.

In treating cases of external fistula, when the tooth is valuable, the pulp cavity should be opened and all carious matter removed, in order to allow the passage of a broach through the foramen at the apex of the fang. The broach should now be barbed, and a piston formed to fit the canal by wrapping it with cotton, which should be saturated with creasote, or a saturated solution of creasote with iodine, and pumped back and forth in the canal until the agent is forced completely through the fistula, and its effects distinctly visible at its termination.

## AMERICAN DENTAL CONVENTION.

The Tenth Annual Session will be held at Detroit, Michigan, commencing **TUESDAY, August 2d, 1864.**

## ORDER OF BUSINESS.

1. Reading the Constitution, and Admission of Members.
2. Reading the Minutes of last Convention.
3. Reports of Officers and Standing Committees.
4. Election of Officers.
5. Retiring President's Address.
6. Induction of Officers.
7. Reports of Special Committees.
8. Miscellaneous Business.

## ORDER OF DISCUSSION.

1. The best means of improving the practice and elevating the profession of Dentistry.
2. *Anæsthetics*—Their proper use and relative value.
3. *Extracting Teeth*: When it should be done and when not,—the best instruments for the purpose, and the subsequent treatment, when any is required.
4. *Absorption of Alveolar Process*—Causes and Treatment.
5. *Filling Teeth*: The relative value of different materials, and the mode of operating in difficult cases.
6. The best methods of obtaining accurate impressions and models of the mouth.
7. The relative value of different materials as a base for artificial teeth.
8. *Miscellaneous*.

All written communications must be read to open the discussion of the subjects to which they relate, and must not occupy more than fifteen minutes in the reading.

No member shall speak more than ten minutes at one time, nor more than twice on the same subject, without the unanimous consent of the Convention.

The subjects selected for discussion are usually practical, and are designed to elicit the results of actual experience and observation, rather than theories and speculations, which are better for the seclusion of the study than for public assemblies.

All Dentists, in regular practice, may become members of the Convention, and all such are hereby invited to attend.

L. W. ROGERS, Utica, N. Y.,	} <i>Executive Committee.</i>
A. W. KINGSLEY, Elizabeth, N. J.,	
J. A. WATLING, Ypsilanti, Mich.,	
A. HILL, Norwalk, Conn.,	
H. A. SMITH, Cincinnati, Ohio.	

## ON THE ADMINISTRATION OF NITROUS OXIDE.

BY CHARLES O. BARKER.

Having noticed, recently, the death of two persons from the use of this gas, I am prompted to write a few lines concerning its administration. I commenced using the gas, as an anæsthetic, shortly after it was applied for this purpose by Dr. Colton in New Haven. I first used, in making it, an apparatus similar to those employed in the chemical laboratories for collecting gases. My "holder" was made of tin, of some forty gallons capacity, and very carefully put together; but I soon found that it was not the thing for convenient practical use. I therefore threw it aside, and obtained a large rubber bag, capable of holding thirty gallons when inflated, also purchased two smaller bags from which to give the gas, and in this way administered it for, perhaps, a month, until I adopted the method which I have since employed most successfully. Being aware that the vital principles of respiration were grossly violated while breathing from the bag as I was giving it, and as all others give it, so far as my knowledge extends, I was led to devise some method by which the breath could be *exhaled* without passing again into the bag to corrupt the remaining gas. To make the proposition more plain—the customary method of giving the gas is: to allow the patient to fill the lungs from a bag containing the doses, perhaps four gallons, throwing the *breath back into the bag*, and repeating the operation until the anæsthetic effect is produced. It is a well known fact that the breath cannot be many times *reinhaled* without inducing death. On this principle, the inhalation of carbon, (carbonic acid gas,) previously *exhaled from the lungs*, might have caused the death of the persons referred to. That I might obviate this, I had made an ebony tube or inhaler, about 5 inches long, of convenient size for the mouth, so constructed that it could be taken apart or unscrewed, thus separating it into two pieces. In the lower or shorter part, I had made a chamber, which is simply an enlargement of the diameter of the tube at that point, large enough to give free play, back and forth, to a conical stopper, which, drawing back as the breath is taken in through the tube, (the two parts now screwed together of course,) gives free passage to the gas. Then the lungs having been filled by the exhalation, the stopper is immediately blown back into the passage way, completely blockading it; thus preventing the breath passing into the bag. To give a vent, I had a hole made through the side of the tube into the chamber, out of which comes the exhaled breath; the hole being closed by the finger, another inspiration can be taken, unalloyed by the carbonic proceeds of previous contributions from the lungs. I will now, in a few words, describe my manipulation in giving the nitrous oxide: I have a light high table on which my large

rubber reservoir lies at all times; this I can easily draw up behind the operating chair; my ebony inhaler I connect to the faucet at the mouth of the gas bag, by a piece of three-eighths of an inch rubber tubing, perhaps two and one half feet long; the teeth having been examined and instruments laid ready, I request the patient to compress firmly the nostrils with the left hand, that the breathing may be done *entirely* by way of the tube; this being done, I place the tube in the mouth with my finger over the hole opposite the chamber, lifting it for the breath to escape whenever the little stopper clicks back into place; this is continued until the anæsthetic effect is satisfactorily produced; then shutting off the gas with my left hand, I remove the tube from the mouth and am ready to operate.

The effect of the gas varies much with different temperaments. I think, however, I can bring any one under its influence, provided they will inhale it properly. Some will breathe fully twice as much as others before arriving at the same point. I have extracted ten teeth during the influence of one inhalation, but this is above the average. Another thing essential I will mention before I close: care should be taken in making the gas to free it perfectly from chlorine: I wash mine very thoroughly. In conclusion, I wish to say that while we all know the practical, outward effects of the different anæsthetics on the patients under our charge; still, I, as one, very much desire to ascertain the true theory of their specific action in the system. We know their effects. But minutely, step by step, how are these effects produced? When introduced into the lungs, is it through the medium of the circulation, or do they act directly upon the nervous system?

MIDDLETOWN, CONN.

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## A CASE OF OSSIFICATION OF THE DENTAL PULP.

BY A. M. HILLS.

An interesting case of ossification of the dental pulp came under my care recently, and thinking it might be interesting, I send the following:

Mrs. M., of middle age, had the left anterior superior molar plugged with gold on its posterior approximal surface, without more than the usual amount of pain. Nearly two years elapsed, when she called on me, complaining of soreness about the roots and surrounding tissues of the plugged tooth, and severe pain in the region of the antrum. An examination revealed an inflamed state of the gums, marked by bluish lines; scarified them freely and ordered chloroform liniment as an outside application. Next day returned with pain much increased and extreme soreness on touching the tooth, with keen sensibility to cold or heat. Removed the plugging and applied tannin and creasote; the pain abated, and the



treatment was continued several days, when the health of the tooth and tissues seemed to warrant a refilling, which was done without pain, and the tooth remained serviceable for nearly two years more, when the old trouble returned in a violent form. The former treatment was resorted to, but without benefit, and the third day administered ether and removed the tooth. Upon breaking off the crown, the pulp was found entirely ossified. Now, the peculiarity of this case is its difference from what are commonly called pulp stones, it being a complete ossification of the pulp, filling the entire pulp cavity, and did not reveal the least trace of moisture in the cavity.

CLAREFIELD, PA., January 30th, 1864.

### EIGHTH ANNUAL COMMENCEMENT OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

BY JAMES TRUMAN, D. D. S.

The Eighth Annual Commencement of this institution was held at Musical Fund Hall, Philadelphia, on the evening of February 26th, 1864, in the presence of a large and intelligent audience. The order of Exercises consisted of Music by Birgfield's Orchestra, Prayer, Conferring of Degrees, and the Valedictory Address.

The Degree of Doctor of Dental Surgery was conferred upon the following named gentlemen, by the President of the Board of Trustees: R. H. Shoemaker, Pennsylvania; Alex. O'Callaghan, Cuba; Geo. J. Underwood, New York; Edwin C. Baxter, Maine; Abram S. Reber, Pennsylvania; Henry Cowie, Michigan; Federico Comas, Manuel Trujillo, Cuba; W. T. Shannon, New Jersey; J. G. Camp, J. W. Vanosten, G. W. Caldwell, Pennsylvania; S. C. Richardson, Illinois; J. B. Snow, Connecticut; George Clark, Vermont; Edward Lefavre, Canada; Thos. E. Osmun, M. D., Pennsylvania.

The Valedictory Address to the Graduates was delivered by Dr. George T. Barker, Professor of Principles of Dental Surgery and Therapeutics. He said:—

**GENTLEMEN:** It is my privilege, as it is my pleasure, on behalf of the Faculty of this College, to be the first to extend to you the hand of congratulation on the successful accomplishment of your studies in this institution; and it is with unfeigned pleasure that we welcome you to the new relation of professional brotherhood, co-laborers in the field of Dental Science. But think not though your studies are concluded in this College, that your student life is ended; on the contrary, this evening's exercise should truly be a *commencement*; and your future course should be characterized by the earnest effort to acquire, and put in practice, such information as may tend not only to your own professional success, but to the advancement

of your chosen calling. It will therefore be an injustice to yourselves, to your profession, and this institution, to cast aside as no longer needful those standard records of scientific research, which have been recommended for your information, and which contain the aggregated labors of the enlightened minds of numberless earnest workers in the field of science. These are truly the unbroken links which connect the present with the past, and which will live as lasting monuments to such contributors long after the chiseled marble which marks their mausoleum shall have turned into dust.

The lectures to which you have listened during the past session, have been, as they ought to be to the dental student, both practical and theoretical. From the chair of Anatomy and Physiology, you have been instructed in the formation, development, and mechanism of this wonderful frame-work, of the intimate relation which exists between each organ, or set of organs—though to the uninstructed eye appearing insignificant, are yet of the utmost importance to the perfect working of this wonderful machine,—of the various physiological processes, as circulation, respiration, digestion, &c., which are constantly going on in the body, uninfluenced by the will, holding in check all chemical laws, which are everywhere universal and unchangeable, unless modified by that vital force which no human mind can ever hope to fathom, which is known only to infinity itself. From the chair of Chemistry, you have had imparted to you information of the elementary bodies which enter into the formation of matter in all its varied forms and combinations; of the unchangeable laws which govern their union, one with another; and lastly—to you of the utmost importance—a knowledge of those metallic substances with which your hands must become familiar, both in the laboratory and operating room. From the chair of Pathology and Therapeutics, the various forms of disease have been considered, as seen in those delicate structures which it is your province to treat; of the local and constitutional influences tending to develop such morbid conditions, and the medicinal agents requisite to treat and restore to health those tissues. And last, though by no means the least important, is the instruction you have received from the chairs of Operative and Mechanical Dentistry. From these, valuable information necessary for every day practice has been expounded: for without adequate knowledge on these topics, your whole career will be one of trouble, anxiety, and non-success. In the respective Clinics of these branches you have been required to put in practice the knowledge derived from the different chairs, thus permitting you to approach with confidence, at the very outset of your career, those complicated cases requiring dental attention; enabling you also to avoid those difficulties and dangers which overwhelm and render valueless the services of the inexperienced and the ignorant. Have you profited by these teachings? Future years in the far off

distance must give back the answer. My heartfelt wish goes out that it may be indeed an affirmative one.

In the selection of a calling or profession, as indeed with every important step in life, it is always well to hesitate and perform a course of self-examination. The world is filled with the sad evidences of misapplied and misdirected labor. On every hand we witness the heart-broken, despondent and unsuccessful pursuer of some occupation, which, were his talents properly directed, would be a shining light in an other calling. Our own profession is, unfortunately, not without its representatives of this class, who perhaps struggle along for years, practicing what they do not, and, seemingly, *care* not to understand—imperfectly following their calling merely as a means of livelihood, and at last, after an aimless life, sink into oblivion. I should not, however, say oblivion, for they are not unremembered, as unfortunate possessors of ruined dental organisms live to remember them to their mortification and sorrow. I say, therefore, have you made the self-examination, and are you willing to devote yourselves to this work? If you have *not*, let me conjure you so to do, and once having determined, place your hands to the plow and steadily go forward. What, some may ask, are these requisite qualifications so necessary to fit one for a Dental Practitioner? I would answer: *First*. A general knowledge of the science of Medicine and Surgery, and a thorough familiarity with the science of our specialty. *Second*. Manipulative ability and mechanical skill. But even these are not the only requisites, others are just as important—and, indeed, may be considered as indispensable—they are Honesty, Perseverance, Patience, and a love for your chosen calling. What can I say to you that will elevate in your esteem that *godlike* virtue, Honesty? And yet, in the outset of your career, let me entreat you to be steadfast in your honesty of action and of purpose; be not enticed from this by any of those temptations which present so alluring an appearance, and which seem impossible of detection. Work, which you know is imperfectly performed, may pass from your hands, and though not accomplishing what it *should* accomplish, may yet be retained a sufficient length of time to exonerate you from the blame of an imperfect operation. But if it is early in your career, your self-respect will have suffered, and though perhaps you may determine it shall not again occur, yet once having given way to temptation, the second occasion will be less easily resisted than the first; for it seems to be a universal law, that evil, no matter how repulsive or hideous its form at first sight, will, if familiarized, at first be tolerated and excused, and at last embraced. Therefore let me urge you to be honest; speak well of your professional brethren, of those who are aiming to place your specialty where it properly belongs, and which it can *never obtain*, and retain, unless its practitioners are men of high-toned honor and integrity. Too

many, unfortunately, when asked as to the capabilities of such and such a practitioner, cannot refrain from some sly innuendo, or significant remark, which is calculated to convey an unfavorable estimate of his abilities. This is most ungenerous to associates in the same work, and tends to create in the minds of the public, doubts as to the benefits to be derived from Dental Surgery and the knowledge of its practitioners. All, however, who claim to be dentists, are not thus worthy of your consideration. Thus the unprincipled imposter, whose flaming advertisement proclaims how much he has done, and how much he can do, for suffering humanity, has no such claim; his aim is not how much good he can accomplish, but how much pecuniary benefit he alone may derive. Where such are met with, you may caution and advise the unwary, and it is undoubtedly your duty so to do. This class are now most fortunately passing out of existence, for as the progress of mankind continues, the relics of the dark and unenlightened ages give way to a more cultivated, scientific and honorable practice.

Perseverance and patience, two qualities of the utmost necessity to the professional man—without them, one may possess the genius of a Newton, or a Franklin, and yet live unloved, unknown, and dying leave not even a footstep as a trace of an existence. With them, any young man, even of ordinary endowments, may make his mark and become a useful and valued member of society; and that community will more especially value him, if he be engaged, as you are, in the practice of a profession having for its aim the alleviation of human suffering. If we look around us, on every side we behold men who, without advantages in early youth, yet still attain high positions in the temple of fame. An examination of their career reveals to us that they possess indomitable perseverance, energy and patience; they are, indeed, the *irrepressible*, and they no more succumb to difficulty than does the little life-boat which rides so successfully the troubled sea, dashing from its tiny sides the swelling waves, by which, at first appearance, it seems destined to be overwhelmed, but which glides away, leaving only the dripping spray as an evidence of dangers past. Perseverance and patience are qualities which will be found necessary to you as dental practitioners, particularly to those who are just about to commence professional life. You may possess abilities of the first order, but it takes time for the public to appreciate them. Your castles built so joyously, may one after another fade away—the present and the future, to your anxious eye, seem dark and tempestuous. In that hour—if it should unfortunately come to one of you—let not your hearts despond, but take courage, remembering that those who gain the lasting honor of their fellow-beings are those who deserve it, and who have won it by earnest perseverance and untiring patience. To the professional man this season of silent waiting is usually one of considerable trial; but few there are who do

not experience it, and the unemployed and leisure hours, if properly devoted to the storing of the mind with the truths of science, may in after years be reverted to as some of the most profitably spent hours of the whole life. Therefore, let me urge you to treasure up the moments professionally unemployed, and turn them into seasons of usefulness and profit through the agency of study and of thought.

I have named as another requisite, a love for your chosen calling. This I consider of so much importance, that did you possess all the other qualities and lacked this one, I should say to you, hold! enter not the sacred portals; you have mistaken your calling, and for your own sake, as well as for the sake of others, select some other occupation. You may ask, how can I convince myself that I possess this? I would answer, you must be assured that you prefer to practice Dental Surgery to any other occupation, without reference to any pecuniary rewards it may offer. In other words, did a number of occupations present themselves to you, each offering the same inducements, you would prefer this above others. To our friends here assembled, and, indeed, to the public generally, this view of the subject may appear strange and singular; but, nevertheless, I feel confident that the most earnest workers in our profession feel it, and truly practice their profession because they love it. Perhaps all can understand the fondness with which an artist watches and views the imagery which his fingers trace in response to the promptings of his imagination, and as each outline or figure becomes more distinct, he becomes more and more intensely *interested*, until at last, having completed the picture, he is ready to exclaim this is indeed unalloyed pleasure. Let me ask you, at what time does that artist experience the most true happiness? Is it when a sale has been effected, and he receives an amount of money for the same? If he is indeed an artist, I contend he will have experienced that real pleasure in its conception and realization, which gold cannot buy, or its absence take away. The same feelings does the true dentist experience, heightened, if possible, by the knowledge of the good he is doing to others. A defective dental organism is presented for treatment, he sees that portions of the teeth have been lost by disease, and that unless the disease be promptly arrested, the dental organs must be lost in a comparatively short period of time. He *first* carefully removes the dead and decaying parts, and proceeds, secondly, to replace those lost portions. He, too, then witnesses the hand respond to the promptings of the mind, and as he sees each particle of gold welded compactly one to another, the metal taking the shape and form of the lost structures, he, too, experiences that innate feeling of satisfaction, which is to him of more real value than the remuneration, be it ever so great, which he receives for the operation.

There are other qualifications which I have not named, which are of

the first importance; such as pleasing address and agreeable manners. On these last named qualities will depend, to a great degree, your future success; possessing them, you will be enabled to relieve many of your operations of their painful and disagreeable character; and mildness, patience, and judicious sympathy will not only attract, but permanently retain, those who, once seeking your advice and skill, are alleviated by you. Not to every one is given the courtlike manners of a Chesterfield, or the polished address of a Sumner or a Lamartine; but every one, no matter how rude his speech or unpolished his manners, can convey in a moment the fact that he can appreciate suffering, and has heart enough not to be insensible to it when called upon to relieve it. Therefore, let me urge you to be gentle and kind to those who come in agony, sometimes unspeakable, to seek your aid; never seeking to convey the impression to the sufferer that you consider them foolishly exhibiting feelings which you, at least, cannot appreciate or respect. I have thus briefly sketched the qualifications requisite, in my judgment, for the dental practitioner. Do you all possess them? Examine and satisfy yourselves.

A glance around us attests the fact, that the age is making constant and increased demand; we see old theories giving way to new; we see enlightened reason, truth and humanity, taking their appropriate stations; everything bears the mark of change—of progress. We cannot, as a profession, expect or wish to be exempt from this progression. The demands of the age upon us are increasing; how can we respond to them? I would answer, each one of you can contribute in this respect, and if you properly do your duty, you cannot fail in this work. Let each one who becomes a dentist not only constitute himself a practitioner, but a teacher of the principles of dentistry. Allow me to explain. We, as Americans, justly claim that the natural teeth are more valued, and the benefits of dental surgery better appreciated in this, than in any other country; but, every one must be aware that, as a nation, we are far from having a just regard for the natural organs. Who has not heard the oft-repeated remark, "that no matter if I do neglect my own teeth, I can have them replaced by artificial ones?" Every community is filled with numbers who are strangers to the proper rules by which the teeth may be retained in a healthy condition. Every enlightened physician meets with various derangements of the system, induced either directly, or indirectly, by dental disease. Again, all possess that national vice which calls down upon us the reproach of European nations—of eating our meals too rapidly, of "bolting" instead of properly masticating our food, living falsely, and predisposing ourselves to disease. These are a few of our national vices, who shall correct them? Who can so appropriately impart instruction, as the practitioner of our specialty? We, therefore, say, let every dentist constitute himself a teacher in his own community; let him impart that information to the

enquiring which he himself possesses, and which to him has been so freely expounded. Let him impress the importance of care, attention, cleanliness, and appropriate treatment when early diseased; of the responsibility resting upon parents to pay proper attention to the temporary teeth of their children, which are now, I am sorry to say, so universally neglected; the only remark which may be elicited, being the statement that "it is of but little consequence as they will soon be replaced by the permanent ones." Knowing their value, impress upon them your own convictions, and rest not satisfied until you have *demonstrated* to them the truths of your assertions.

Gentlemen, the words to which you have listened from the lips of the President of the Board of Trustees of this College are not unmeaning. The Degree of Doctor of Dental Surgery is not an empty honor conferred upon you by us, but an honor won by yourselves by patient labor and industry. It is a testimony to the fact that you have diligently studied in this institution the science of dentistry, and that after a thorough examination we have found you worthy, and, therefore, confidently ask the world to repose confidence in you. But even the possession of a diploma will not place you in the front rank of your colleagues—that honor you must win for yourselves; the foundation being well and truly laid, the superstructure is now to be added; look to it, therefore, that it be of such a character that not only yourselves, but that we, as your teachers, may view with pride and satisfaction your future career. Remember, too, that what you accomplish will not only establish your position and title to respect in the world, but, perhaps, that of numbers of your brethren who are toiling onwards, and of thousands who may follow you. Not all who set out in life, with the noblest determinations, win this courted honor; allurements are on every hand which tempt, successfully, the unwary; thus many, whose early career gave promise of extended usefulness, sink exhausted by the wayside or toil on, dishonoring themselves, and a dishonor to their calling. The professional man, above all others, needs to be ever on his guard; the relation existing between his patients and himself must necessarily be of an intimate character. He cannot hope for, nor expect that relationship, unless his every day life will bear the pure and glorious sunlight. Avoid, therefore, those miscalled "pleasures" which will tend to detract from your good name, and ever remember that you have willingly and cheerfully devoted yourself to the high and noble duties which you have publicly assumed to-night, and which have for their object the holy mission of alleviating human suffering. Before closing my remarks, I feel impelled to express gratitude and thankfulness that we have been enabled to pursue our appropriate studies and duties of the past session, surrounded and shielded by the blessings of peace. No tumults of mighty hosts rushing to conflict has fallen upon our ear; the

thunder of artillery, of opposing armies has not disturbed our nightly slumbers. But though our ears have not heard these direful sounds, let us not even in this hour forget that this quietude is purchased for us, by a brave band of devoted hearts, who are daily and hourly sacrificing health, life, and all man holds most dear for the preservation of our peace and the perpetuation of our glorious Union, now thrice glorious as she emerges from the conflict, elevating high in air the emblems of universal Liberty, Justice and Humanity. Let every heart then respond to these feelings of patriotism, and while enjoying the blissful security of our homes and our firesides, acknowledge appropriately these blessings, and never forget or withhold that sympathy which our cause so justly merits. Where is the American who has read the history of our revolutionary struggle, and has there seen recorded the trials, privations, and sacrifices made by the patriots of those times, who has not felt his heart swell with emotion, and as deeds high and noble have been detailed, has not the inward wish been breathed, would that *I had lived* in those days that I too might have participated in those trials, and have proved my devotion to so worthy a cause? And as time passes, and the pen of the historian traces the history of this conflict against oppression and injustice, the youths and maidens of future ages will read the record of our trials and, I doubt not, breathe the same wish that they, too, might have lived and have proved how glorious is the recompense of those who are willing to lay *all* upon the altar of their country. And finally, gentlemen, I close these remarks with the earnest wish that every duty in life may receive from you a faithful performance, and on behalf of my colleagues and myself, I bid you "God speed" and a heartfelt farewell.

The address elicited marked attention, and was warmly applauded. At its close, the orchestra performed the national airs, which called forth enthusiastic applause, the audience rising in a body; on their conclusion, a benediction was pronounced by the Rev. Wm. H. Furness.

The following Demonstrator's Report of the Operative Department is of interest, showing, as it does, the relative liability of the teeth to caries.

Number of patients visiting the Clinic..... 2202  
 Number for whom the following operations were performed..... 1687

Of fillings, there was inserted

Front Incisors.....	137
Lateral Incisors.....	105
Cuspidati.....	42
Bicuspids.....	267
Molars.....	564
Fangs.....	201

---

1,316



## Of these there were of

Gold.....	807
Tin.....	690
Amalgam.....	6
Hill's Stopping.....	13

## Miscellaneous Operations.

Superficial Caries Removed.....	15
Removal of Salivary Calculi.....	85
Treatment of Periostitis.....	37
“ and Filling Pulp Cavities.....	201
“ of Alveolar Abscess.....	24
“ of Inflammation of the Gums.....	5
“ of Partial Necrosis.....	15
“ of Diseased Antrum.....	2
“ of Irregularities.....	15
“ of Necrosis of Superior Maxilla.....	1

## Extraction of Teeth and Roots, there was of

Front Incisors....	307
Lateral Incisors.....	261
Cuspidati.....	282
Bicuspidi.....	485
Molars.....	777

2,112

Total number of operations performed. . . . . 3,828

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### Editorial.

THE ARTICLE promised in the January number of the TIMES, on Nasal and Palatine Defects, from Prof. Wildman, and also the one on Nitrous Oxide, from Prof. Buckingham, though in type, have been crowded out in consequence of other matter. Prof. Barker, on account of severe illness, has been unable to continue his article on Creasote in this number.

C. N. P.

---

SOME WEEKS since, we received from Dr. S. S. White, some WAX COMPOUND, which, for taking partial impressions, is certainly the best article in use.

From the same source, we have also received a package of Felt Cloth, which, in connection with pulverized pumice, spar, or sillex, is most excellent for removing the stains from the teeth; its virtue consisting in the tenacity with which it retains on its surface the powder used. C. N. P.

**VULCANITE TEETH.**—We desire to call attention to the new kind of teeth for vulcanite base, manufactured by Rubencame & Stockton. The improvement consists in the method of fastening without the use of platina rivets, and appears to us to combine many advantages not to be obtained in teeth of any other description, we have ever seen or used.

There can be no possible danger of exposing rivet heads or ends in finishing, or fear of the teeth drawing away from their rivets (as in ordinary pin teeth,) on the contrary, we believe that no more durable or simple fastening can be desired than these afford, presenting at the same time, so complete and accurate a finish, with so much less risk and labor in mounting.

Below we give a cut, showing the heel surface of some sections, and also an end view, the rubber forcing its way into the openings, and over the edges of the gum, inside and out, affords a perfectly solid foundation, and in fact, becomes as it were, a part of the tooth itself.

We believe they are good, and recommend them to the Profession generally. *See their advertisement.*

G. T. B.



THE FACULTY would respectfully return their thanks to Dr. Hunter, of Cincinnati, for some finely executed separating chisels; also to Mr. J. A. Woodward, of Philadelphia, for five very fine specimens of native copper, and one of crystalized carbonate of lime from Lake Superior; and to Dr. A. M. Hills, of Clearfield, Penna., for a molar tooth with ossified pulp.

#### PUBLISHERS' NOTICE.

The present number closes the first volume of the **DENTAL TIMES**. The first number of the second volume will be issued early in the month of July, and the succeeding numbers will appear, as usual, quarterly. We shall endeavor, as heretofore, to furnish the readers with communications, original as well as eminently practical, and those desiring the journal, will please to so signify by remitting the price of subscription, one dollar, to Dr. C. N. Peirce, 501 North Seventh street, Philadelphia.

### BLOCK TEETH AND VULCANITE.

I would respectfully inform the DENTAL PROFESSION that my Laboratory has been REMOVED TO 100 NORTH TENTH STREET, where, after having made considerable improvements in my style of carving and enamels, with assistants also, I am now enabled to execute all orders with promptness and despatch.

Dentists wishing to try Vulcanite Base, can have a few cases made at a reduced price.

**WM R HALL,**

100 North Tenth Street, Philadelphia.

# PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE NINTH ANNUAL SESSION, 1864-'65.

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**The Lectures to the Regular Course will commence on the 1st of November and continue until the 1st of March.**

During the last two weeks of October, preliminary Lectures are delivered, one each day.

The Rooms for Operative and Mechanical Dentistry are open from the 1st of October and throughout the session, under the supervision of the Demonstrators.

The Dissecting Room, under the superintendence of the Professor of Anatomy and Physiology, is open during the session.

<b>Fees for the Course, (Demonstrators' Ticket included,)</b>	<b>- \$100</b>
<b>Matriculation, (paid but once,)</b>	<b>- 5</b>
<b>Diploma Fee,</b>	<b>- 30</b>

**C. N. PEIRCE, Dean,**

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501 North Seventh St., Philadelphia.

P. S.—Board may be had at from \$3.50 to \$6.00 per week.

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VOL. II.

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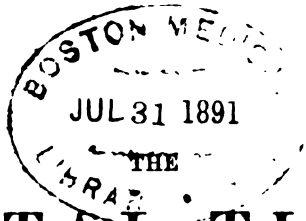
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# DENTAL TIMES.

VOL. II.

PHILADELPHIA, JULY, 1864.

No. 1.

## A CASE OF ARTIFICIAL NOSE AND HARD PALATE.

BY. E. WILDMAN, M. D., D. D. S.

In May, 1863, a young man, aged 26 years, presented himself for the purpose of having an appliance made to repair the loss sustained by tertiary syphilis. Upon removing the black patch which he wore upon his face, and the cotton, with which the cavity was filled, (without the latter he could not articulate a word,) I found the entire external nose was gone, that the nasal bones, the nasal processes of the superior maxillary, also a large portion of their palatine processes, the approximal parts of the palatine processes of the palatine, and the turbinated bones had been destroyed. The soft palate, the uvula, and the tonsils, were uninjured.

Fig. 1.

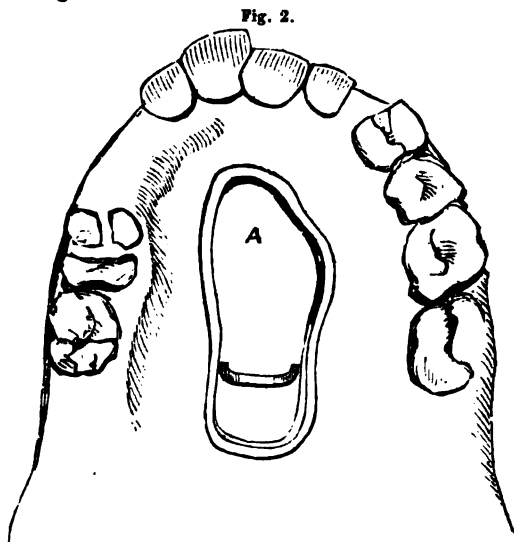


FACE WITHOUT NOSE.



Fig. 1, will convey an idea of the external appearance of the patient, but not fully, as the whole upper lip was cicatrized, and the left cheek depressed near the border of the cavity.

In looking into the nasal cavity, the walls of the antrum on the left side were found deficient, and ends of the roots of the incisors exposed and decayed. The tongue was visible through the opening in the palatine arch. The size and shape of this orifice is represented by the outer central line in Fig. 2.



INTERNAL VIEW OF SUPERIOR ARCH.

Although desirable, it was deemed unsafe to remove the diseased roots, owing to the yielding nature of the superior maxillary bones. The disease appeared to be arrested, and the parts in a sufficiently healthy condition to warrant the application of the substitute; and time has verified this, as, with the exception of the exfoliation of a small scale from one of the superior maxillary bones, about nine months since, no change has taken place up to this date.

The first step in the operation was to procure an impression, that would enable me to make a perfect model of all the parts involved and their surroundings, in their relative positions. For this purpose plaster was best adapted, but its use was precluded by the acrid secretions in the nasal cavity; wax and paraffin was considered the best substitute, and used. Owing to the rigidity of the upper lip, I was unable to use the ordinary impression cup with success, and was obliged to take a rough impression of the palatine arch, from which a model was made, and a metallic impression cup swaged.

A sufficient quantity of paraffin and wax was placed in warm water, and with an assistant, to keep it at the proper temperature, the mode of procedure was as follows: A proper quantity of the compound was placed in the cup, introduced into the mouth, and pressed up firmly against the arch, the part forced into the palatine fissure was at the same time pressed with the finger introduced through the nasal cavity, so that it should give an accurate impression of its lateral borders. A groove was then cut in this to serve as a key, and after oiling it, a piece of the compound was introduced through the orifice of the nasal cavity, and pressed down to make the impression of the floor of the nasal cavity. When sufficiently hard it was carefully removed, the upper surface trimmed, placed in cold water to give it its greatest firmness, then introduced into the cavity, and pressed into its proper position. The metallic cup containing the impression of the palatine arch was then removed. The next step was to take an impression of the sides of the cavity, then the top, using a curved wooden spatula to press the compound in proper position, being careful to mark or key the parts that came in contact, and have their surfaces oiled, to prevent adhesion; and also, that the pieces should be thinner in front than in their posterior parts, so that when the four pieces forming the impression of the base, sides and top, were in their proper position, they would leave a tapering cavity, with its largest diameter at the front orifice. Into this orifice was forced a plug or cone of the compound, filling it completely; in the front of this piece were inserted pieces of match sticks, to cause it to adhere to the next piece or mask. The head was now thrown back to nearly a horizontal position, wet tissue paper was placed over the eye-brows and lashes, the face oiled, and plaster mixed thick was battened on with a brush. When set, this was removed, drawing with it the central plug or cone; the different parts were then carefully removed and thrown into cold water, to give them a consistency to bear handling without danger of injury. On this central cone all the parts were placed in their proper position, and the impression of the palatine arch adjusted in its proper place. From this a plaster model was made, giving the upper part of the face, cavities, palatine arch, all correctly in their relative positions.

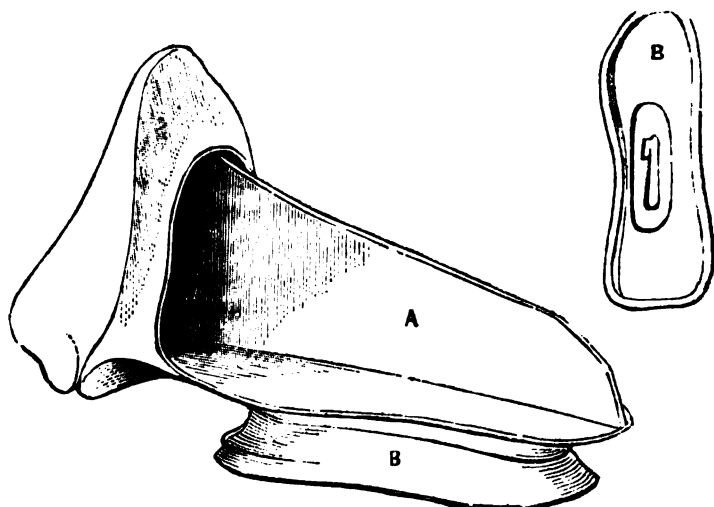
Of the different substances—leather, wood, wax, metal enameled and porcelain—used for making artificial noses, I gave the preference to hard rubber in this case, on account of its rigidity, strength, lightness, and less liability to injury by accident.

To prevent derangement, it was necessary to make the appliance as simple as possible; it consisted of two pieces: the external nose, septum and floor of the nasal cavity constituted one, having a projection passing downward into the palatine fissure, as represented in Figures 2

and 3, A; and the other, the obturator B, Fig. 3, with a projection rising upward into the palatine fissure. These projections were made hollow, so that when the two parts were placed together, as in Fig. 3, there would be a cavity, or box, wherein the attachments could be placed.

Fig. 3.

Fig. 4.



NOSE WITH ATTACHMENTS.

Models were made of the compound of paraffin and wax, which were strengthened in the weaker parts by imbedding small strips of metal in their substance to give sufficient firmness to admit of the necessary handling without injury. The model was applied to the patient and the nose trimmed so as to harmonize with his features. They were then imbedded in plaster in the usual manner for vulcanite work, with the exception that a stout curved wire passed through the artificial nasal cavities, extending beyond their borders, to give strength to the rods of plaster forming these cavities in the matrix, and thus to prevent their fracture in packing.

This appliance was vulcanized four hours, consuming one hour in attaining 280° F., at which point it was held one hour, and occupying the third hour in elevating the temperature to 320°, where it was retained one hour. The work was rather overdone but not so much so as to injure it.

The two pieces were retained in position by a staple and slide bolt. In the recess of the part of the floor of the nasal cavity, projecting into the palatine fissure (A, Fig. 2,) was inserted a gold staple. In the recess of the projection of the obturator passing into the palatine fissure (B, Fig.

4,) was the gold catch and shield of the slide-bolt. The object of this shield was to prevent any foreign substance entering the slot and obstructing the movements of the bolt, also to give a base of support to the catch. The rectangular upright of the catch was soldered to the shield, passed through it and a longitudinal slot in B and securely fastened to a rubber slide inlaid longitudinally, and moving freely in the lingual surface of the obturator. On the anterior end of this slide was a small rounded projection, which enabled the patient, when the two parts of the appliance were placed in their proper position, with the point of a finger introduced into the mouth, to force the slide backward, thereby to pass the catch into the staple and firmly secure the apparatus, or, by drawing the slide forward, detach the parts when desirable to remove them.

The external nose was painted with oil color, to give it as nearly a flesh tint as possible, although this is not attainable upon an opaque ground. Flesh being translucent, a true imitation can only be made upon a translucent ground.

Fig. 5.



FACE WITH NOSE.

The apparatus was introduced on June 30th, 1863, giving to the patient great satisfaction and comfort. His appearance was much improved, as may be judged by comparing Figures 1 and 5, which were engraved from photographs. He breathes freely through the nose, and speaks

with ease; the only imperfection in his speech is a nasal twang, and this is less now than when the instrument was first applied. The obturator at first extended too far back, and caused some irritation of the vellum; this defect was readily remedied.

The operation proved entirely satisfactory, with two exceptions: First, the color of the nose was not as natural as desirable, for the reason already stated; second, in deglutition and speech, when the tongue pressed forcibly against the posterior part of the obturator, an unpleasant vibratory movement of the apex of the nose was noticeable. This could have been remedied by an elastic attachment coupling the two parts of the apparatus, but this mode was objectionable by reason of its producing constant pressure upon the delicate parts, and thereby endangering absorption. A safer plan was adopted by inserting a small steel pin in the nose as near as possible to its apex, to which was attached the bridge of a pair of spectacle frames, these being retained in position by an elastic cord attached to the bows and passing around the head. This arrangement answered the double purpose of counteracting the vibratory movement, and the bridge of the frames concealing the upper part of the joint where the nose came in contact with the face, which was most conspicuous.

Within the past week I saw the patient and examined the apparatus, it was as perfect as when first applied; he wears it with ease and comfort, and expresses himself as being truly grateful that he can once more sport a nose.

JUNE 10, 1864.

---

## NITROUS OXIDE.

BY T. L. BUCKINGHAM, D. D. S.

In the January number of the DENTAL TIMES, I published an article on the process of procuring nitrous oxide or laughing gas. I then stated that the properties and administration of the gas would be a subject for another paper. So great a change has taken place with the public in regard to the use of this gas since the article referred to was published, that it is hardly necessary to point out its properties, or give any directions for administering it. But as this gas has been so extensively used as an anæsthetic, and represented to be so "perfectly harmless," that "it can be given in all sorts and stages of diseases," it may be proper, at this late day, to examine some of its properties, and see if it is as safe and harmless as some who have used it represent it to be. One, and a principal reason given for its being safe to use is, that it "consists merely of the elements of the common air, nitrogen and oxygen, mixed in a little different proportions." Let us examine and see whether the two elements which compose this gas are merely mixed together, or

chemically combined. This is an important point to commence with. A mixture of two gases, one of which will support life, and the other, not being detrimental to it, may be breathed for a long time without producing any injurious effects. Take oxygen and hydrogen as an example, mix them and they can be breathed, and a person would scarcely know any difference between them and the air for a considerable length of time; but cause them to combine chemically, and we have water formed which cannot be substituted for air, even for a few minutes. In a mixture, the elements retain their individual properties, and each element is at liberty to enter into combination with another that may be brought in contact with it. But where they are chemically combined, they in a measure lose their individual properties, and the compound takes on properties differing from those of any of the elements of which it is composed.

It is not necessary to give examples of this, for the whole science of chemistry is an example, without a single exception.

But is the nitrous oxide a chemical combination of the two elements? We might cite all the authors on chemistry to show that it is, but probably a few examples would be more satisfactory to the reader, as well as showing some of the properties of the gas.

The simplest and plainest evidence of it being a combination and not a mixture, is shown by its taste. Neither nitrogen nor oxygen has any taste when separated from other elements, and they are still tasteless when mixed together, (as they are in the air;) but nitrous oxide has a sweet taste, which goes to show that it is a chemical compound.

This gas is soluble in water. Cold water will take up its own volume of this gas, while one hundred cubic inches of water at  $60^{\circ}$  will dissolve only three cubic inches of oxygen, and still less of nitrogen. And again, nitrous oxide can be reduced to a liquid state by great pressure and cold, and in this respect it differs from the mixture of the two elements, neither of which, separately nor when they are mixed, can be reduced to a fluid condition by any means known, unless they are first caused to combine chemically.

Nitrogen and oxygen mixed together in the proportions they are in nitrous oxide, might be breathed for a great length of time without producing injurious effects. The effect would be a slight stimulation, (but no anaesthetic influence,) as the oxygen would be in a greater proportion than it is in the air, which contains four of nitrogen to one of oxygen, while in the former case they are in equal proportions. Even in pure oxygen an animal will live eight or ten hours, and then dies only from over-stimulation, the effects being very different from those produced by nitrous oxide.

Nitrous oxide was discovered by Priestly, in 1776, and called *dephlogisticated nitrous air*, but its properties were not fully known until after

the researches of Davy, in 1800. Until that time it was considered not only unrespirable but poisonous. In 1800, Sir H. Davy published his *Researches*, in which he gives the effects of this gas. I quote two cases re-published in Brande's Manual of Chemistry, Vol. 1, page 329-30. The first account is by Mr. Tobin, and the second by Dr. Roget:—

“On the 29th of April I breathed four quarts from and into a silk bag. The pleasant feelings produced at first, urged me to continue the inspiration with great eagerness. These feelings, however, went off towards the end of the experiment, and no other effects followed. The gas had probably been breathed too long, as it would not support flame. I then proposed to Mr. Davy, to inhale the air by the mouth from one bag, and to expire it from the nose into another. This method was pursued with less than three quarts, but the effects were so powerful as to oblige me to take in a little common air occasionally. I soon found my nervous system agitated by the highest sensations of pleasure, which are difficult of description; my muscular powers were very much increased, and I went on breathing with great vehemence, not from a difficulty of inspiration, but from an eager avidity for more air. When the bags were exhausted and taken from me, I continued breathing with the same violence: then suddenly starting from the chair, and vociferating with pleasure, I made towards those that were present, as I wished they should participate in my feelings. I struck gently at Mr. Davy; and a stranger entering the room at the moment, I made towards him, and gave him several blows, but more in the spirit of good humor than of anger. I then ran through different rooms in the house, and at last returned to the laboratory somewhat more composed; my spirits continued much elevated for some hours after the experiment, and I felt no consequent depression either in the evening or the day following, but slept as soundly as usual.”

Dr. Roget states as follows:—“The effect of the first inspirations of the nitrous oxide was that of making me vertiginous, and producing a tingling sensation in my hands and feet; as these feelings increased, I seemed to lose the sense of my own weight, and imagined I was sinking into the ground. I then felt a drowsiness gradually steal upon me, and a disinclination to motion: even the actions of inspiring and expiring were not performed without effort; and it also required some attention of mind to keep my nostrils closed with my fingers. I was gradually roused from this torpor by a kind of delirium, which came on so rapidly that the air-bag dropt from my hands. This sensation increased for about a minute after I had ceased to breathe, to a much greater degree than before, and I suddenly lost sight of all the objects around me, they being apparently obscured by clouds, in which were many luminous points, similar to what is often experienced on rising suddenly and stretching out the arms, after sitting long in one position. I felt myself totally incapable of speaking, and for some time lost all consciousness of where I was, or who was near me. My whole frame felt as if violently agitated: I thought I panted violently; my heart seemed to palpitate, and every artery to throb with violence; I felt a singing in my ears; all the vital motions seemed to be irresistibly hurried on, as if their equilibrium had been destroyed, and everything was running headlong into confusion. My ideas succeeded one another with extreme rapidity, thoughts rushed like a torrent through my mind, as if their velocity had been suddenly

accelerated by the bursting of a barrier which had before retained them in their natural and equable course. This state of extreme hurry, agitation, and tumult, was but transient. Every unnatural sensation gradually subsided; and in about a quarter of an hour after I had ceased to breathe the gas, I was nearly in the same state in which I had been at the commencement of the experiment. I cannot remember that I experienced the least pleasure from any of these sensations."

I have re-published the above lengthy extract to show how clearly the effects of nitrous oxide were described over sixty years ago. From the time Sir Humphrey Davy investigated its properties, it was only exhibited to produce exhilaration, and no one, so far as I know, attempted to cause insensibility by it, until Horace Wells, of Hartford, Connecticut, after seeing its effects at an exhibition, in December, 1844, conceived the idea of using it to prevent pain in extracting teeth. I am aware that more than forty years before Davy wrote, "as nitrous oxide in its extensive operation seems capable of destroying physical pain, it may probably be used with advantage during surgical operations, in which no great effusion of blood takes place;" but as it had never been used for that purpose, and Mr. Wells being the first to use it to relieve pain, he is entitled to the credit.

Whether nitrous oxide is as safe an agent as ether or chloroform, is still undecided; its friends claim that it is, while others have strong objections to its use. One or two deaths having occurred immediately after inhaling it, have made dentists very careful in administering it.

Nitrous oxide is usually administered by filling a bag that will hold four or five gallons of the gas, to which is attached a wooden faucet or stop-cock, the opening through which should be at least an half inch in diameter, to allow the gas to pass freely in and out. The end of the faucet that goes into the mouth may be made of wood, hard rubber or ivory; it should be made of a substance that can be kept clean, and not of metal, as the teeth are sometimes closed very hard on it.

When the gas is administered the patient is requested to exhale as much as possible to empty the lungs. The mouth-piece is then placed in the mouth, the faucet opened, and the nose closed either by the operator or the patient. The gas is inhaled from the bag into the lungs and exhaled into the bag again, so that the patient receives no atmospheric air during the administration. From half a minute to a minute is usually the length of time required to bring the patient into an insensible condition.

There is a decided objection to administering the gas in this way— a portion of the gas is returned from the lungs into the bag loaded with carbonic acid and other impurities, and then inhaled again into the lungs, a quantity of nitrous oxide being absorbed each time it is inhaled, so that



by the time the patient becomes insensible there is very little gas remaining in the bag. These impurities in the gas might have serious results, and I have no doubt they cause many of the unpleasant effects complained of after inhaling it.

Mouth-pieces have been made with valves in them to allow the gas from the lungs to escape and not pass into the bag again. These will be an improvement if they can be made to work properly. In those which I have seen, the operator has to watch when the patient exhales and open the valve with his finger. It is sometimes very difficult to tell when they are exhaling, and as the operator has also to watch the condition of the patient, he generally has a little more than he can attend to properly when he undertakes to manage the valve.

In conclusion, I can say that I do not think the nitrous oxide possesses any properties which makes it safer than ether to administer, and it is more difficult to prepare and keep and more likely to be impure.

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### REPLACEMENT OF A TOOTH.

BY C. N. PEIRCE, D. D. S.

On the 3d of January last, a gentleman called at my office, and, as I was absent at the time, left with my assistant a left central incisor, and desired that I should call at his residence immediately upon my return. At 2½ o'clock, I called upon the patient, a lad of nine years, who had displaced the tooth by a fall an hour and a quarter previous. At this time the soft tissues around the tooth were very much swollen. The clot was turned out and the tooth tried in the socket, when, with a little effort, it went quite into place. It was then taken out, and the nerve extracted through the foramen at the apex of the fang, which was sufficiently large to admit the passage of a good sized broach. The nerve cavity was next filled through this opening with Hill's Stopping, the sharp, undeveloped edges at the end being trimmed smooth to prevent irritation. At 3 o'clock, the tooth, having been out a little over two hours, was replaced, and held in position by linen ligatures attached to it and the adjoining teeth. The frequent use of dilute tinct. of myrrh as a mouth wash was then ordered, and a cork given him to place between his teeth to prevent their coming in contact and producing irritation. A cap was then made for the crown of the head and a pocket for the chin, the two being connected on either side by a strap and a buckle, and at night were put on, the cork placed between the teeth and the straps buckled tight, bringing the teeth hard upon the cork, thus preventing its falling out and the approximation of the teeth while he slept. The experiment has proved successful, the tooth now being perfectly firm in the socket and the color not in the least changed.

PHILADELPHIA, June 17, 1864.

## THERAPEUTICAL AGENTS.

BY L. BUFFETT, D. D. S.

To therapeutical agents dentistry owes its position as a profession to a great extent; throw them aside it becomes a mere trade. The dentist who has not a fair knowledge of remedial treatment, does not meet the demands of his patients, much less of the profession. Such a one has taken to himself the title of Dr., or perhaps, by some means it may have been conferred, when in reality he is at best only an artisan or mechanic, although he may boast of not soiling his hands in the laboratory. If he attempts a treatment without knowing the properties of the agents, applying them because some one has recommended their use, he is engaged in mechanical labor, for his treatment is nothing more than a mechanical one.

As a general thing the agents that are demanded by the dentist are not numerous, yet he should have at his command most of those that are needed by the physician, and be able to use them understandingly if the case requires. There is no disease that flesh is heir to, but has its influence on the teeth or their surroundings, directly or indirectly.

Many of the agents have different properties, so different results can be produced by the same one, according to the quantity, time and manner used. To apply the same remedy alike in all cases, is the worst kind of practice, it is really quackery. Take, for example, the most common agent used in dentistry, which is creasote, and let us see the different properties which it possesses. It is a stimulant, sedative, narcotic irritant, antiseptic, escharotic and styptic; perhaps other qualities might be given it. Thus we see that this agent alone covers a large field, and to produce these different results, its action, chemical and physical, must of necessity be understood. If properly applied, it may remove fungous growths, if improperly, may increase them; may stimulate, so that new and healthy tissue may be formed, or may destroy to a great extent.

It is not the intent of this article to treat of the properties of any therapeutical agent, but to show the need of a correct knowledge of them, and of a thorough dental education, which should not be a superficial one, that can be gained in a few weeks, or learned alone in the laboratory in mere mechanical labor without study.

If practitioners would oblige their students to take a full course of study, allow none in their office but those who are willing to come up to the right standard, we should soon see dentistry taking rapid strides onward and upward, should feel that the millennium was near. The opposite is too much the course pursued. They will take a young student and make him think their office affords all that is necessary in practice, put him in the laboratory and keep him there, as he can be of

the most service to them in that place. No attention is paid to his scientific knowledge; hardly a question is asked him in relation to chemistry, anatomy, or any of the branches of medicine and surgery, and if it is possible to make a quack dentist of him, it will be done. These deficiencies they then try to cover up with boastings and pretensions. The aim of every true dentist is to advance the profession in every honorable way, and the character of the man can be told to a great extent by the position his students take in the profession.

CLEVELAND, OHIO.

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### FILLING TEETH.

BY DR. H. SCOTT.

I have made filling teeth my specialty during the last fifteen years of a thirty years' practice. I do not know that I have any suggestions to offer that will be new to the general practitioner; yet, a brief detail of some of my methods may be useful to the young dentist. Many of my early ways of doing this work, I have, in common with other operators, long since discarded; and I have some methods, and some views, peculiarly my own, which may, in some respects, differ from others who have been equally successful.

First, my great care is to secure firm borders to my cavities, and in all cases, to form them more or less on the dove-tail plan, that is, wider within than without. The second point I gain is, to fill the cavities with foil, made as firm as pressure and the mallet can make it. These are the general ends to be gained, in which there will be no difference of opinion.

I use adhesive foils exclusively, rolled into cylinders of various sizes. These I cut into sections of suitable length, and place them in the cavities endwise. In central round cavities I fill from the bottom, two-thirds or more of their depth, and then with my sections I commence at one side and finish at the other, but in some cases in the centre. Every section or pellet is put to its place and made firm before it is left, the surface being pierced, or made rough, to receive the next. In round cavities, of smooth or even walls, I aim to get a ball of foil that will come as near as possible to filling the hole. This I deem a matter of great importance. I always manipulate my foils out of the mouth as firmly as will be consistent with their proper introduction. If my foils are not sufficiently adhesive, I pass the pellets through a spirit flame, but if I have fresh foil, that has been well prepared, I pay no attention to this. I have used various foils, but am now using White's exclusively; it possesses all the qualities that I require, and I use none but No. 6. I cannot give

a description of the instruments I use, they are my own, as those used by others are *their* own.

I dry with blue tissue paper, rolled soft and cut into pellets of varied size. I keep my cavities dry where I can, for convenience; but I can make just as good a filling "*submarine*" as I can on dry land, only it requires more labor. I sometimes stop and begin a dozen times or more, during the process of filling one cavity. This gives the patient time to rest, and the operator time to deliberate. If I want to do the best work that it is possible to do, I prefer having only from three to six cavities in the same day.

Having secured the primary ends of filling, viz., firm borders, and rolled pellets, pressing firmly into every niche and point of the walls; I am less careful about polishing the surface, except front fillings that are seen, than many operators, deeming it a matter of trifling importance. Neither am I so careful to cut away all the discolored bone from the interior as I once was. Mischief is often done in this way, by cutting to the pulp membrane, which, in a very large proportion of cases runs into trouble, and often to the loss of the tooth. I often leave discolored, and even softened bone, where I suspect the proximity of the nerve. In this way I have saved many teeth, and have, in some instances, upon removing the filling many years subsequently, found a solid substratum of dentine. I use tin foil and Wood's Metallic Stopping satisfactorily in some frail teeth; but amalgums and pastes, or cements, are an abomination to me.

I refuse to operate in all cases where the will of my patient is to interfere with my freedom in cutting away dead portions of enamel, as much as may be necessary to secure firm healthy borders, and to make enduring fillings. I am, perhaps, more lavish in the use of my cutting instruments than many eminent operators, but the result of more than one hundred thousand fillings sustains and justifies my practice. The fears that the "*plugs will be seen*" must be dismissed by the patient, and disregarded by the operator, if the safety of the tooth is the end sought. In the incisors, especially, is firmness in this matter required, and young operators are often found yielding to the prejudices of the wrong directed judgment of their uninformed patrons; and it is only in after years, when the teeth are hopelessly crumbled away, that both learn their mistake.

I will, if my time permits, give, in future numbers of the "*TIMES*," some thoughts on fang filling, and the treatment of exposed nerves, which, in my practice, have not been specially flattering. Also, a chapter on quack dentists in the West, which will be, in some respects, refreshing.

LANCASTER, OHIO.

## REPAIRING GOLD PLATES.

BY DR. CORYDON PALMER.

Allow me to offer a small, practical item upon repairing gold plates, for the benefit of those of our dental friends who live at a distance from the dental depots, and cannot so readily supply themselves with new teeth when wanted, and more especially in these days when gold plate teeth are fast going out of use.

It often happens that a tooth, by constant hard strain, is pulled off, or, rather, the pins are pulled in two, leaving short portions in the tooth. Now, the tooth may be such a one, as for shade and form, that it *can not be replaced*. The following is my mode of managing the case:

Take a common three-cornered file, grind the point on each side, so as to make it sharp; with this sharp-pointed file cut away around the pins, so as to get a little more length, take a small pair of plyers and draw up the pins to a *conical shape*; next find some platinum pins from broken up teeth, or some platinum pin wire, and form two pieces that will sit upon the pins in the tooth (this is done by drilling holes in the ends of the new pieces, so that they will fit on and keep their places without dropping.) The next thing to be done is to envelope the tooth in plaster, or any favorite coating, leaving the portion around the pins exposed; grind some *raw borax* on a piece of *thick glass*, made rough with sandstone, which is *better than slate*, then cut some small pieces of the finest *gold plate*, touch the pins with the borax, place these on the points in the *tooth*, place a small cutting of the gold to each one, lay the tooth on a good charcoal, lay some small pieces of coal around to retain the heat, and solder with the flame of the spirit lamp, drawing the heat low down, so as to flow the gold low down on the old pins. This makes two new pins, that will do to rivet on or solder, and saves an otherwise *hopeless case*.

To rivet on a tooth after suitably countersinking the holes, take the *plate punch*, put several folds of paper against the face of the tooth, then use the *plate punch* in place of the light riveting hammer.

Hard maple makes the best charcoal; it is made from the sugar maple, and it is worth the while for those of our dental friends, who can take the trouble, to have it prepared for themselves.

Another mode of managing a tooth that the pins are pulled in two, is this: use the pointed file to cut away around the pins, so as to form little depressions; next reduce the thickness of the lining just where the pins go through, replace the tooth, and with the plate punch draw down the gold into the depressions around the pins, and solder.

The practice of cutting away the teeth by first grinding upon each side of the pins, and afterwards finishing with the sharpened file point, is also of

great advantage where the teeth are too thick, and is also one of my own discoveries.

I give these minute particulars for the benefit of those who are like myself, far away from the large dental stores, and cannot have the advantage of a large assortment to select from.

WARREN, O., April 13.

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### A PERPLEXING CASE.

BY DR. H. SCOTT.

In July, 1863, some front teeth were filled by my partner, Dr. Crider, for a young man, a clerk in a dry goods house, of our city. Two weeks later he called to say that he was suffering excruciating pain in the first superior left molar. Upon examination, every tooth in that side, posterior to the cuspid, was found to be perfectly sound and healthy in every respect, the sounding hammer giving back only the healthy sensation.

I at once fixed my mind on the idea that there was an impingement of the pulp by a filling in one of the cavities, but the most carefully conducted experiments failed to indicate the one. Cold and heat, and the hammer, were applied from day to day, without showing any results. During all this time, and for more than two weeks, the pain was almost without intermission in the molar, which, to all tests, never varied from its normal condition. At length all pain ceased, and for about one month he was entirely comfortable.

I had placed him under a promise to call, upon the earliest indication of trouble in any of the front teeth. He, however, did not quite obey me. He called one morning, after breakfast, with considerable swelling of the upper lip, attended with a sensation of throbbing. The touch showed the right lateral incisor to be highly sensitive and slightly elongated. He stated that the tooth had been sore at supper, the previous evening, and that the throbbing commenced about bed-time and continued through the night. I decided the time to arrest the inflammation to be past. The tooth was extracted, and upon removing the filling, an opening was discovered communicating with the pulp cavity. The pulp was dead, and a sack was formed at the apex of the fang.

The obscurity of the case was perplexing, exceeding anything I have ever witnessed. But the sequel was a lesson, teaching the importance of greater care in conducting the operation of filling where the nerve might be suspected near. The cause of all the young man's suffering was the impingement of the pulp by a filling in the incisor tooth; but why the seat of pain should have fixed itself in the healthy molar, in a perfectly healthy neighborhood, who can tell?

LANCASTER, OHIO.

## CREASOTE.

(CONTINUED.)

BY GEO. T. BARKER, D. D. S.

Creasote as a remedial agent in the hands of the general practitioner has been extensively made use of, but at present it is used less than in former years. One of its first uses was for the relief of vomiting, by Dr. Ellitson, who states that "no medicine was at all comparable to it in allaying this symptom. He knew it to succeed where hydrocyanic acid had failed, also in cases of nervous vomiting, the vomiting of pregnancy, in cases of obstructed bowels, and even in those of arsenical poisoning." The dose was one or two drops, renewed immediately if rejected. Creasote has been used with some success in the excessive and persistent vomiting of sea sickness. It has been found efficacious in the treatment of vomiting from cholera, gastric inflammations and intemperance. The following formula has been recommended for the purpose of arresting vomiting.

*Haustus Creasoti.*

R.—Creasot,  $\text{m}\text{j}$ ;  
 Aquæ camphoræ;  
 Infus gentian compos, aa f 3vj;  
 Fiat haustus.—*Dunglison.*

One of the first employments of creasote was for the arrestation of external hemorrhages, and its power has been abundantly confirmed. The first to experiment as to its hæmastatic properties, were Simon, Muller and Reiter, their investigations being carried on with inferior animals. A brief description of one of their experiments may not be uninteresting. The crural artery of a dog was exposed, and cut a short distance from its division, compression at the same time being made upon the trunk; nine minutes afterwards a compress of cotton, saturated with creasote, was applied to the divided extremity, with some degree of pressure. On the removal of the compress the bleeding was found to have been arrested, the wounded surface dry and of an ashy gray hue. In a severe case of epistaxis, which had resisted other agents, Höring inserted two plugs of lint, wet with a solution of creasote, into the nostrils, the hemorrhage soon ceased. Fichtdauer has borne testimony to its efficacy in arresting violent bleeding from leech bites, after other hæmastatics had been used in vain. An interesting case is detailed in the Edinburgh Medical and Surgical Journal, October, 1841. The operation of lithotomy having been performed, the usual means of arresting hemorrhages were tried without success, no particular vessel could be discovered from which the blood flowed. The bleeding continued until the life of the patient was despaired of, he being reduced to unconsciousness. A sponge was dipped

into pure creasote, as an experiment, and placed on the wound, pressure being made on the bleeding parts, hemorrhage immediately ceased. Dr. W. T. Wagg, in the *Southern Journal of Medicine and Pharmacy*, has detailed a number of interesting cases, including hemorrhage from the lungs, bowels and bladder, flooding after abortion, flooding where there was no pregnancy, &c., the medicine being given internally, with excellent success. In cases where there is some lesion of the integuments, as in excoriations, induced by lying, as bed sores, or the *intertrigo* of children, superficial ulcers, and fissures of the skin, it has been found useful. "Meister found the application of creasote water in cases of *carious*, *scrofulous*, *syphilitic*, *fistulous* and *sanious* ulcers, to be strikingly and almost uniformly advantageous." According to Reich and Sir Francis Smith, they treated with success cases of *cancerum oris*, and the former one, of scorbutic ulceration of the gums. Smith and Sinkler give the following as an emulsion for external use as a hæmastatic.

R.—Creasot, f ʒj;  
 Acaciæ pulv., ʒj;  
 Aquæ, f ʒviij;  
 Et fiat emulsio.—M.

Creasote as an application to chilblains, burns and ulcers, is by many highly recommended. Its discoverer (Reichenbach) considered it a curative to pulmonary consumption, but its use for that purpose has been abandoned, it being inferior to other terbinthinate medicines. Dr. Ellitson, in the *Med. Chir. Trans.*, xix. 222, states that several cases of *neuralgia*, affecting the spinal or facial nerves, had been treated with creasote with success, after other remedies had failed. Other testimony, however, goes to prove that in some cases the remedy had no influence on the disease, and in others, it appeared to aggravate it. Creasote has been highly spoken of as a remedy for aphthous ulceration, the inflamed part being painted over with a solution, by means of a camel's hair pencil. Magendie uses the following:

R.—Creasot, f ʒss;  
 Acaciæ, ʒiss;  
 Aquæ camphor, j ʒxss. M.

As a dental remedy, creasote deserves an extended notice, as perhaps no one agent is so universally used by us, and is so efficacious if properly applied. One of the first uses was as an ingredient in the arsenical paste. The first to suggest this agent was Dr. Parmly, whose formula was equal parts of arsenious acid and sulphate of morphia and creasote, with 3 or 5 times its bulk of conserve of roses, *Dental Cosmos*, Vol. III., 479. This was at a subsequent period modified by Dr. J. D. White, who was



the first to recommend that arsenical paste be mixed and kept on hand ready at all times for use. His formula was

Arsenous acid, grs. xxx. ;  
Morphia sulph. grs. xx. ;  
Creasote, qs.—*Misce.*

The advantage of this formula over the original one of arsenic alone, or combined with acetate or sulphate of morphia, must be apparent to every one, as its influence is exerted directly upon the nerve tissue uniting with the albumen, and in conjunction with arsenious acid overstimulating the tissue and hastening its speedy death. It was supposed, on first preparing the arsenical paste, that it was necessary to rub the arsenious acid, morphia and creasote together, for several hours, that the two first might be dissolved and held in solution in the creasote. It has now been demonstrated, by experiments, that creasote does not hold arsenic in solution, but that, in a short time after it is made, the arsenic will fall to the bottom of the jar, with the morphia next above, and, lastly, the creasote on top. It is, therefore, necessary, in preparing an application for an exposed pulp, that the pellet be carried well down to the bottom of the jar, so that a repetition of the treatment be unnecessary. The property it possesses of uniting with the constituents of nerve tissue has induced Dr. Dwinelle, of New York, to recommend it alone for the destruction of the dental pulp. His mode of procedure is as follows:—Dries out the cavity perfectly, applies a small portion of creasote, and with a nerve broach breaks up the attachments of the pulp in the canal; by this means promotes absorption of the creasote, and so continues the application of the creasote and broach until he reaches the apex of the fang. This method gives no pain. He usually fills immediately, and has never had any subsequent trouble. (*Report of American Dental Convention.*)

Creasote is most efficacious in arresting, temporarily, the pain arising from an exposed pulp. This is accomplished in consequence of its uniting with the albumen of the nerve tissue, forming an insoluble coating, acting, indeed, as a *protective*. There is no remedy for toothache that is so popularly used, and there are few dentists of extended practice who have not repeatedly had to treat severe burns of the face, lips or cheeks, made by the injudicious use of creasote by those who were unaware of its escharotic properties, having applied the agent as they would a simple astringent solution. And we would here impress the importance of protecting the lips and tongue when creasote is used about the teeth, as a drop upon those tissues may induce a painful and unsightly ulceration.

The antiseptic properties of creasote eminently fit it as an agent in the treatment of teeth containing devitalized pulps which are undergoing, or

have undergone, decomposition. One or two applications, accompanied with washings of warm water, will remove the odor and restore the parts to a healthy condition. Creasote may be either injected into the fang canal by a delicate syringe, or upon a thread of floss silk carried to the apex upon a broach; the latter is probably the best method. The power of arresting decomposition in tissue by creasote has caused certain practitioners to recommend that it be placed in the fang at its apex, to overcome any inflammatory tendency, or to arrest decomposition in any minute portion of pulp which may not have been removed.

Creasote is an excellent remedy for the treatment of alveolar abscess. It should be applied directly to the point of inflammation, where it acts, probably, in several different ways; first, by constricting the cells of the limiting fibrine or sack, this will reduce the suppurative discharge; second, by its stimulant properties promoting absorption of the sack, and by its antiseptic virtues preventing decomposition. In treating alveolar abscess no successful result can be expected unless the agent is brought directly in contact; this can usually be accomplished by means of a broach, having upon its apex a pledget of cotton saturated with creasote, using the broach as a piston.

Creasote has been used to arrest decay in the deciduous teeth. A foreign journal, in treating of this subject, says, the great fluidity of creasote frequently occasions much inconvenience when it is applied for caries of the teeth, and M. Stanulus Martin, to obviate this, recommends the combination of 15 parts of creasote, by weight, to 10 parts of collodion, to fill cavities.

Creasote, when pure, is an acid, colorless, and is solid at the ordinary temperature of the atmosphere. Carbolic acid, an article which has attracted considerable attention in Europe, is by many excellent chemists considered identical with pure creasote, as made from coal tar.

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## DENTAL GOSSIP.

BY O. U. C.

MESSRS. EDITORS:—I have been more than surprised, indeed grieved, that in a whole year's publication of "THE DENTAL TIMES," you have either intentionally or from inexcusable neglect, failed to make the customary editorial notice of that able periodical, "*The Dental Register of the West*:" and this too, after its kind and considerate notice of the "TIMES," (if in no other way,) in making a selection or selections from its pages without credit. I do hope, therefore, that you will, without further delay, extend the usual editorial courtesy "in such cases made and provided," and thus welcome the journal under notice into the rank of the fraternity.

As specimens of very fine writing I submit the following, about which it is difficult to determine which most to admire, the brilliancy and elevated tone of the language used, or the clear and lucid manner in which the ideas are evolved. Any professional writer or speaker desiring to create a profound sensation, or excite the risibilities to an alarming extent, could not do better than adopt something like the following :

"Let us ask then what irritation is? It is the disturbance of the 'me,' in its most occult relationship to organism in the sea of *nervo-auro* in the mucoid nervine, within and without the perceptible nervous tracts of the living body," etc.—*Dental Register of the West*, for February, p. 62.

"Thus in the planetary system, the *centrifugal force* by which a revolving body tends to *fly from the centre of motion* in the direction of the tangent to the path the body describes, is opposed to the *centrifugal force* through which a body revolving about the centre is *drawn toward that centre*; thus each, while opposing the other, is at the same time *controlling and controlled* by the other."—*Dental Cosmos*, January, 1864, page 331.

Here we have the very singular anomaly presented, and which is certainly a bran new theory in the law of forces, of the *centrifugal* being opposed to the *centrifugal*.

"By the especial favor of heaven has this department (the dental) been ushered into existence, in its present necessities and nakedness of form, for the fulfilment of law heretofore substituting and holding relation to this department, just as Judaism did to Christianity. And, thanks be to God, the so-called publicans and sinners of the profession, like the Gentiles and conquerors of old, accepted the truth of the dental department readily, because they had no false record, or false dignity, or self-righteousness to interpose between their eyes and the truth, and they were at once soundly converted," etc.—*Dental Register*, May, 1863, page 200.

I could go on much further, but enough has been given to show what nonsense may be uttered in the name of dentistry, and that, too, (in the latter extract,) under the caption of "The use of the Mallet."

"The how of this first complete step, equivalent to all the subsequent steps to full expression of bodily form of material presence, is too occult for elucidation by the use alone of any language now at command, but when a truly natural language shall find means of expression, any feeling, idea, thought, opinion, belief, or knowledge, will be easy of complete enunciation.

"Then, if all certainty depends upon the unknown, is it not clear that negation is quite equal to affirmation! or that 0 is equal to 1? or theory to practice, or infinity to eternity, or God to creation?"—*Dental Register*, for July, 1863, pages 280 and 282.

As a companion to the above, and found outside the precincts of the profession, and to show that the writer of the above is not alone in possession of these brilliant scintillations of mind, I append the following :

"The asteric stand-point of Christian exegetical analysis and aggluti-

nating the polysynthetical ectoblasts of homogeneous asceticism."—*Sunday Paper*.

I have heard a story somewhat as follows :—A gentleman from abroad called upon a dentist in a neighboring city for some operations, in the way of fillings, upon his teeth. On the completion of said operations, the charge of *eleven hundred and fifty dollars and fifty cents* was made. The gentleman remonstrated—would not pay any such price. Dentist firm at first, but subsequently came down to *eight hundred dollars*. Gentleman still dissatisfied—tendered *five hundred dollars*, promising to pay the other three hundred after a fair trial of the operation, and which amount was finally accepted and the bill settled.

Somewhat similar in principle, though trifling by comparison, is the following, clipped from a newspaper :—

[At the N. Y. Fair!—Scene: very pretty girl pinning bouquet on Young Swell's coat.] Young Swell—"Twenty-five cents for the bouquet, I think you said; here's a Two-Dollar Greenback." Young Lady—"Yes; Twenty-five cents for the bouquet; a dollar for pinning it on your coat; and seventy-five cents for the pin. That's just right; thank you. Can't I show you something else?"

This is a species of buncombe (to call it by no worse name,) that deserves occasional ventilation.

PHILADA., June, 1864.

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## CASE IN PRACTICE.

BY H. COWIE, D. D. S.

A soldier of the Twenty-fourth Michigan Volunteer Infantry, wounded at the battle of Gettysburg, called at the office to consult with Dr. Cleland, in company with myself, as to the best means of obviating an obstruction in his speech.

On examination, it appeared that he had been shot with a musket ball, the missile entering below and slightly anterior to the left ear, passing through and shattering the lower jaw, thereby severing the muscles of that side, continuing on through the centre of the palate bones, and making its exit through the right eye.

The difficulty experienced in his case consisted in obtaining an impression. He being unable to open his mouth to a greater extent than one inch. Remembering a case related by Dr. Wildman, Prof. of Mechanical Dentistry in the Pennsylvania College, where he had taken an impression in sections, I applied his method in this case, and was thus enabled to obtain a good impression of the necessary parts, and succeeded in making a palate piece; obviating, in a great measure, the defect in the speech of the patient, enabling him to once more pursue his business, which was that of a telegraph operator.

DETROIT, MICHIGAN, April 20, 1864.

## SPIRIT VARNISHES.

BY E. WILDMAN, M. D., D. D. S.

In the laboratory a spirit varnish is required to varnish models, to prevent the hands from becoming soiled by the plaster in handling them, and also to ensure a better parting from the sand in moulding.

The following formulæ will enable the dentist to prepare very good, cheap and reliable varnishes for dental purposes.

## SHELLAC VARNISH.

Gum-shellac, 5 ozs., avoirdupois,  
Alcohol, above 60 per cent., 1 pint.

These are mixed together in a bottle, and in a few days the shellac will be taken up. It should be frequently shaken. The operation will be hastened if the bottle is placed in warm water; in this case the bottle should be loosely corked, as the vapor of alcohol, if it had no vent, might burst the bottle.

## SANDARACH VARNISH.

Gum sandarach, 5 ozs., avoirdupois,  
Alcohol, above 60 per cent., 1 pint.

This is made in the same manner as the shellac varnish, and by the aid of the warm water bath the gum is dissolved in a few hours. The safer plan in making these spirit varnishes is to allow the gums to dissolve at the ordinary temperature. In using heat we facilitate the solution of the gums, but at the same time the vapor of alcohol is generated, which is very inflammable, and without care may cause an explosion.

Shellac varnish makes a tougher film on the face of the model, it is brown, is more viscid and consequently does not penetrate the plaster as much as the sandarach.

Sandarach varnish dries quickly, and if only clear pieces of the gum are used, which is the proper mode, it makes a colorless film, is sufficiently hard for all practicable purposes, and, owing to its perfect solution or fluidity, penetrates the plaster deeper and gives greater solidity to the face of the model.

In case the varnish becomes too thick by long standing and not properly corked, add a little alcohol to bring it to the proper consistence.

Where it is desirable to make a very hard surface to the model, take some of the above sandarach varnish and dilute it with alcohol to make it more penetrating, and apply several coats until a smooth surface is obtained: by this treatment of a model, made of good plaster, which has been properly mixed, we obtain a very hard surface.

I give a decided preference to the sandarach varnish, owing to its more penetrating properties, and giving the model a more slightly appearance.

## TOOTH POWDERS AND MOUTH WASHES.

BY GEO. T. BARKER, D. D. S.

It is of the first importance to the dentist to select and prepare a suitable dentifrice for the use of his patients, and we consider it highly censurable for any dentist to recommend any of the many tooth powders, the formula of which is unknown to him, no matter what may be its reputation, or how much it may be extolled by the judicious use of printer's ink. That many of these tooth powders are positively hurtful is beyond question, and many can doubtless attest the truth of these remarks, by recalling instances where the teeth have been injured and the gums caused to recede by the use of an improper tooth powder. In the formation of a dentifrice, one simple rule should be universally adopted, viz: select only such materials as are soluble in the saliva, discarding all insoluble substances, such as charcoal, pumice stone, or the ashes of different substances. Charcoal is an article once considerably used for cleaning the teeth, but should never be so used, as the small particles work their way between the gum and the tooth, irritating the periosteum, causing it to recede, the teeth to gradually loosen; also furnishing points for the accumulation of tartar, which is so hurtful to gum tissue. Dr. Chas. E. Francis, in an excellent article on this subject, Vol. I., No. 2, of this Journal, says: "I have known instances where particles of charcoal have remained imbedded beneath the surface of the gums for five years after its use had been abandoned." Another care in forming a tooth powder should be to adopt one containing not too many ingredients, but on the contrary, let each article be selected for some specific object, not trusting, as did the early writers on dentistry, to a multiplicity of ingredients, expecting that by being brought in contact some new substances would be formed; as an instance of this, we would quote from *Fitch's System of Dental Surgery*, published in 1829.

## OPIATE FOR THE TEETH.

"Take prepared coral, ʒij;  
Gum shellac, dragons' blood, catechu, or Japan earth, ʒa. ʒj;  
Cinnamon, cloves, root of pyrethrum, aa. ʒvj;  
Red saunders, cuttle fish bone, calcined egg shells, ʒas;  
Decripitated salt, ʒj.

Reduce them all to powder, and sift them through a linen sieve as fine as silk, then mix them in a marble mortar, with a sufficient quantity of the honey of roses."

A tooth powder should also possess the quality of being pleasant to the taste, and of an agreeable perfume. To accomplish the first named

result, gum myrrh and particularly cinchona bark must be discarded. Myrrh from its nature is gummy, and clings to the teeth instead of cleansing them, and there are other astringents better fitted for use, not possessing this quality.

We append several formulæ, none of which, however, we claim as original, many of them being selected from a French work on the Art of Perfumery, by Piesse.

#### FARINA PIESSE'S POWDER.

Precipitated chalk,	2 pounds;
Orris root,	2 “
Rose pink,	1 drachm;
Fine powdered sugar,	$\frac{1}{2}$ pound;
Otto of neroli,	$\frac{1}{2}$ drachm;
“ lemons,	$\frac{1}{2}$ ounce;
“ bergamot,	$\frac{1}{2}$ “
“ orange peel,	$\frac{1}{2}$ “
“ rosemary,	1 drachm.

Instead of using so many articles for a perfume, some may prefer a few drops of the best otto of rose.

#### ROSE TOOTH POWDER.

Precipitated chalk,	1 pound;
Orris,	$\frac{1}{2}$ “
Rose pink,	2 drachms;
Otto of rose,	1 “
“ santal,	$\frac{1}{2}$ “

#### OPIATE TOOTH PASTE.

Honey,	$\frac{1}{2}$ pound;
Chalk,	$\frac{1}{2}$ “
Orris,	$\frac{1}{2}$ “
Rose pink,	2 drachms;
Otto of cloves,	$\frac{1}{2}$ “
“ nutmeg,	$\frac{1}{2}$ “
“ rose,	$\frac{1}{2}$ “

Simple syrup enough to form a paste.

#### VIOLET MOUTH WASH.

Tincture of orris,	$\frac{1}{2}$ pint;
Espiret de rose,	$\frac{1}{2}$ “
Spirit,	$\frac{1}{2}$ “
Otto of almonds,	5 drops.

## EAU BOTAT.

Tincture of cedar wood, 1 pint;  
 " " myrrh,  $\frac{1}{2}$  "  
 " " rhatany,  $\frac{1}{2}$  "  
 Otto of peppermint, 5 drops.

All these tinctures should be made with grape spirit, or at least with pale unsweetened brandy.

## BOTANIC STYPTIC.

Rectified spirit, 1 quart;  
 Rhatany root, 2 ounces;  
 Gum myrrh, 2 "  
 Whole cloves, 2 "

Macerate for fourteen days and strain.

## RUBBER.

BY EDWIN C. BAXTER, D. D. S.

Many objections have been urged, and much been said condemning the use of vulcanized rubber as a base for artificial dentures; still, its use is daily increasing, and in many parts of the country is already employed almost to the exclusion of every other material. Having had some experience in working it, and an opportunity of observing its effects, I will endeavor to answer some of the objections as they occur to me, and throw out a few hints in regard to its manipulation. One writer states, unqualifiedly, that the rubber is colored with a preparation of arsenic, and portrays almost the horrors of death by that poison as consequent upon its use. Such a statement coming from a dentist might have some weight with patients unacquainted with the material; therefore, I would say, for the benefit of such, that arsenic is not incorporated in the rubber in any form. Rubber is colored with a preparation of mercury, and upon this fact many found their objections, setting forth the liability of the wearer to salivation, a consequence much to be dreaded, but which I have reason to believe cannot be attributed to the use of the rubber, as the coloring matter cannot be separated after vulcanising. I have never seen any ill effect result from its use, and have had an opportunity of observing its effects for three years where it is used very extensively. An acquaintance of mine has contracted the habit of chewing rubber, and for ten successive days it was chewed an average of six hours a day, with no perceptible effect, which would not have attended the mastication of any substance the same length of time. The rubber chewed was, of course, not vulcanized, and the coloring matter was freely dissolved and taken into the stomach, which was indicated by the color diminishing and



the lips and saliva becoming perceptibly reddened. After being chewed a few hours, it became very soft, and retained its pliability.

If rubber, after vulcanizing, is as injurious as is frequently represented, it must be more so previous to vulcanizing, when the coloring matter is freely separated, as in the case cited, where it was chewed without any perceptible result.

Wax that has been boiled, is preferable for fastening the teeth to the wax plate, it being more easily removed from the pins; and for this reason, when practicable, the flasks should be parted without heating. Dark joints, and the liability of the teeth being pressed out of place, are objections which may be easily overcome by a little care in grinding, and allowing them to stand over night in the flasks before packing. In packing, heat the flasks to a temperature sufficient to soften the rubber, pack a surplus quantity—having provided for its exit by numerous grooves—raise the temperature and bring the flasks together slowly. An air chamber is not important in full upper sets, for, if the impression is correct, they will fit equally as well after being in the mouth a short time; are free from the objections to air chambers, and the plate can be made much thinner, which is very desirable.

Some condemn the rubber block teeth as having an unnatural appearance, but by the use of the single gum teeth they can suit their own ideas with as much facility as if setting them on plate, and with a little care in grinding, the joints will be equally as good.

KENDUSKEAG, MAINE, June 16.

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## SYNOPSIS OF PROCEEDINGS OF DENTAL ASSOCIATIONS.

### Hudson Valley Dental Association.

BY DR. S. D. FRENCH.

At a meeting of the Dentists of Troy, Lansingburgh, Waterford and vicinity, held at the office of Dr. O. R. Young, December 8th, 1863, for the purpose of organizing the meeting, Dr. H. H. Young was elected temporary Chairman, and S. J. Andres temporary Secretary. The object for which the meeting was called was stated by Dr. N. D. Ross, and several of the gentlemen present expressed themselves very much in favor of forming a Dental Association, and all present were unanimous in their expression that it would be for the general interest of the profession to form such an Association, whereupon a motion was made by Dr. S. D. French that a committee of three be appointed by the Chair to draft a Constitution and By-Laws.

The Chair appointed Dr. S. D. French, Dr. L. C. Wheeler and Dr. O. R. Young such committee.

On motion, the Chair was added to this committee.

On motion, the meeting adjourned to meet at the call of the Chairman, at the office of Dr. French, to hear the report of the Committee on Constitution and By-Laws.

In pursuance of such call, a second meeting was held at the office of Dr. S. D. French, Tuesday, December 29th, 1863, at 7 o'clock, P. M., when the committee made their report, and, on motion, the Constitution and By-Laws were unanimously adopted, when the meeting adjourned to meet at the office of Dr. Jenkins, January 5th, 1864, at 7 o'clock, P. M., for the election of officers.

At an adjourned meeting, held at the office of Dr. C. H. Jenkins, for the election of officers, the meeting was called to order and proceeded at once to elect its officers for the ensuing year, whereupon the following gentlemen were chosen: President, Dr. H. H. Young; Vice-President, Dr. S. D. French; Recording Secretary, Dr. S. J. Andres; Corresponding Secretary, Dr. S. P. Welch; Treasurer, Dr. O. R. Young; Executive Committee, Drs. L. C. Wheeler, S. P. Welsh and C. H. Jenkins.

The President, on taking the chair, delivered the following address:

*Gentlemen of the Hudson Valley Dental Association:*—Through your partiality you have elected me your presiding officer for the present year. To say that I feel flattered by the unanimity with which you have conferred this honor upon me, is but a feeble expression of the sentiment which animates me in the acceptance of the office and duties imposed.

With your organization completed, and with the same unanimity prevailing which we have seen this evening among the members present, augurs a success and fellowship worthy of the spirit which has induced the effort now being made to elevate a higher standard of professional etiquette, to cultivate a more thorough acquaintance with the science and practice of Dentistry, and to make ourselves the recipients of a deserved public confidence.

Our profession, to be respected, demands intellectual culture, and a high state of moral excellence.

By association, we shall assimilate in the attainments characteristic of acknowledged gentlemen. To become such, and to perfect our skill, so as to render the best practical assistance to our present patrons, will insure to us their gratitude and high esteem, and through them perpetuate our memories in the future. Let us, then, highly appreciate an attendance upon our REGULAR MEETINGS, and come together to canvass the merits, and discuss the principles of our practice.

The facilities afforded to acquire knowledge at the present day are so great that continuous improvements are constantly being made. The practical results of experience are distributed, and a community of thought prevails, so that he who puts himself in a position to listen with attentive

ear, or who will not shut his eyes to recurring events, must, necessarily, advance in the right direction.

The Dentist who reposes on the reputation already won, quiet in his way, is asleep, and, like Rip Van Winkle, will, perhaps, awaken one day, and, to his surprise, find that he is *lost* to everybody but himself, and that his former reputation is, to say the least, of doubtful character.

Some of us co-laborers, through a series of nearly one-third of a century, or an entire generation, have sought the elevation of our profession. We have lived, in those early days, when Dental Laboratories were inaccessible for purposes of instruction; when, between members, there was little or no interchange of sentiment. Those days are past now, our younger members are instructed in our Dental Colleges, advised in our Dental Associations, well-read in the Dental periodicals of the day, they are taken in hand by the older members of the profession and conducted to eminence and usefulness. Auspicious days are these to seekers and lovers of Dental literature.

As ours is a mutual association, instituted for protective good will to and for each other, so let it be, in its object, an earnest—that our patrons shall be well served; that we prove reliable in our doings and relations with each other; so we elevate and give character to ourselves and the noble profession represented in the HUDSON VALLEY DENTAL ASSOCIATION.

Gentlemen, soliciting your forbearance, and relying on your assistance, it shall be my pleasure to discharge the duties of your FIRST PRESIDENT to the best of my abilities, and I thank you, in *my heart*, for the honor conferred.

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#### Susquehanna Dental Association.

BY DR. J. D. WINGATE.

In pursuance of a call by a number of Dentists, a Convention of the Profession met at the Montour House, in Danville, Pa., and formed themselves into a permanent organization, adopting the name of THE SUSQUEHANNA DENTAL ASSOCIATION.

*List of Members Present.*—Drs. G. B. Brown and E. C. Kester, Danville; W. A. Chittenden, Scranton; C. S. Beck and J. M. Barrett, Wilkesbarre; C. W. Sanders and John Vallercham, Selinsgrove; John Locke, K. E. Berlin and H. Gerhart, Lewisburg; E. G. Horne, Berwick; George Rishel, Wm. N. Rishel and H. C. Hower, Bloomsburg; H. H. Martin, Jersey Shore; J. L. Andrews, Milton; G. W. Renn, Sunbury; B. L. Rich, Millville; M. D. L. Dodson, Williamsport; John D. Wingate, Bellefonte; C. M. Williams, Pittston; B. F. Kinney, Light Street, and W. F. Vallercham, New Berlin.

After the adoption of a Constitution and By-Laws, the following officers were elected, viz.: Drs. J. M. Barrett, President; G. B. Brown, Vice-President; John D. Wingate, Recording Secretary; M. D. L. Dodson, Corresponding Secretary; H. H. Martin, Treasurer; John Locke, Librarian.

Drs. H. Gerhart, W. A. Chittenden and G. W. Renn were appointed Executive Committee.

Drs. H. Gerhart, C. S. Beck, M. D. L. Dodson, G. W. Renn, R. E. Burlan and John Locke were appointed Essayists for the year.

After a full, free and amicable discussion, the following, offered by Dr. H. H. Martin, was agreed upon, namely:—

*Resolved*, That it is the duty of the members of this Convention cordially to unite in raising the prices of their dental services to a fair remunerative standard, in view of the great advance of all things surrounding them; and that we each pledge to the other our honor to labor for the accomplishment of this end, to which we are most justly entitled.

*Resolved*, That when we adjourn, it be to meet in Lewisburg on the Wednesday after the second Monday of January next.

Drs. John Vallerchamp, J. L. Andrews, J. M. Barret, R. E. Burlan and E. C. Kester were appointed delegates to the American Dental Association.

Communications were read, and ordered to be filed, from Prof. C. N. Peirce, of Philadelphia, Dr. A. Jones, of New York, and Prof. J. H. McQuillan, of Philadelphia, all containing good advice and encouragement for the success of the Society.

The Evening Session was occupied in advancing various opinions and discussions relating to the advancement of dental science.

DANVILLE, PA., May 4, 1864.

### Buffalo Dental Association.

BY G. B. SNOW, D. D. S.

A meeting of the Dentists of this City was held at the rooms of the Buffalo Medical Association, on South Division street, last Friday night, for the purpose of organizing a Dental Society. A Constitution was adopted, and the following officers elected:—

President, Dr. George E. Hayes; Vice-President, Dr. R. G. Snow; Secretary, Dr. G. B. Snow; Treasurer, Dr. J. R. Wetherill.

Nearly all the dentists practicing in the city were present, and a great deal of interest was manifested in the proceedings. It was proposed to hold meetings on the first Monday evening of each month, for the discussion of subjects connected with dentistry. The next meeting will be held at the Medical Hall, on Monday evening, June 6th, at 8 o'clock.

BUFFALO, N. Y.

**Editorial.****PUBLISHERS' NOTICE.**

The second volume of the DENTAL TIMES commences with this number, and we consider it not inappropriate to take a brief retrospective view of the past, as well as to form plans of increased usefulness in the future. This Journal was established at a time not the most auspicious, in consequence of the devotion of the public mind almost exclusively to the different moves in the great conflict with rebellion; yet, nevertheless, it was concluded to publish the TIMES, and by making it a valuable assistant to the dental practitioner, deserve success. It was also determined to publish a journal which should only contain original material, the only deviation being for some article of special interest to the profession, which might be deemed worthy of republication. No space, however, being devoted to "*selections*" from dental and medical magazines, such quotations being not unfrequently but a repetition of what has been subscribed for and read, or upon subjects entirely foreign to our speciality. In this respect we claim to have been eminently successful, no article upon our pages having appeared elsewhere. This is also a determination for the future, and our readers may be certain that, having been the only dental journal in this country that has succeeded in accomplishing such a result, there will be rarely, if ever, a departure from this rule in the future. The decided advance in paper, printing, labor, and materials of all kinds necessary for a magazine, has greatly increased the expense of publication; but we have concluded *not to advance* our subscription price, but continue at the original cost of one dollar per annum, in advance.

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**REMOVAL.**

The building in which the Pennsylvania Dental College has been located for the past eight years, also, being occupied by the Faculty of the above named Institution four years previously, under the title of the Philadelphia College of Dental Surgery, being desired by its owner, Mr. S. S. White, a change of location was rendered necessary. We are pleased to state to our friends that we have secured a much more commodious and convenient building, on the S. E. corner of Arch and Tenth streets, which is now undergoing alteration to fit it for our purposes. When completed, we shall have the finest clinical operating room in this country, it being a single room, with a front on Tenth street of 85 feet, and on Arch street 20 feet, with an operating light that cannot be surpassed. The building will be finished about the 1st of August next, at which time we shall remove to it.

## DENTAL MEETINGS.

The attention of our readers is directed to the fact that the annual meeting of the American Dental Association will be held at Niagara Falls, New York, on the last Tuesday in July. The annual meeting of the American Dental Convention will commence at Detroit, Michigan, on the first Tuesday of August. Both these meetings promise to be largely attended, and every dentist who attends cannot fail to derive benefit from these annual gatherings of earnest dental practitioners.

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☞ We have lately been shown teeth from rubber work, manufactured by W. A. Duff & Co., No. 516 Arch street, with double-headed pins, which we think, in some respects, are better than any in the market. Besides having good solid heads on the pins on the outside, they have heads inside the teeth as large as are usually put in teeth for plate work. The pins were also sufficiently long to allow of being bent, so as not to show through the rubber when finished. A more extended notice of these teeth may be seen by reference to our advertising columns.

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T. L. B.

☞ We are indebted to Dr. Lewis Buffett, of Cleveland, Ohio, for the model of a mouth, representing the transposition of the cuspid and lateral incisor of the right side. The cause of this malposition Dr. B. attributes to the premature removal of the deciduous cuspid, which is undoubtedly correct. We are also indebted to Dr. G. F. Bixbey, for a lateral incisor, with one of the most singularly malformed fangs that it has ever been our pleasure to possess.

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C. N. P.

☞ We acknowledge the reception of two sets of teeth in sectional block, from Mr. C. H. Eccleston, the manufacturer. We regret, owing to the press of matter, that we are unable to insert his accompanying communication.

The specimens laid before us possess a more natural appearance than we generally find in artificial teeth, and one feature is particularly worthy of notice, the laterals are broader and in better relative proportions to the front incisors than usually made.

E. W.

☞ In consequence of a press of matter, the continuation of the article on Caoutchouc, by Professor Wildman, will be postponed until the next number.

## OBITUARY.

With feelings of deep regret we are called upon to announce the decease of our friend and co-laborer, Edward N. Bailey, D. D. S., Demonstrator of Mechanical Dentistry in the Pennsylvania College of Dental Surgery, which occurred on the 18th of June, 1864, after a brief illness. To state that his family and the profession have met with an irreparable loss, is but to pay a just tribute to his memory; for no one in this city was more active or devoted to the advancement of his profession than Dr. Bailey, and possessing, as he did, mechanical and scientific ability of the first order, he was ever seeking to bring his special branch of dentistry up to its appropriate stand-point. Of his usefulness as a demonstrator, we sincerely state that his course has ever met with our unqualified approbation, and none can better attest his worth than the classes of the last two sessions.

At a meeting of the Faculty of this College, it was unanimously

*Resolved*, That we have learned of the decease of Edward N. Bailey, D. D. S., Demonstrator of Mechanical Dentistry in the Pennsylvania College of Dental Surgery, with feelings of deep emotion and regret, endeared as he was to us by his many virtues and his exceeding value as a demonstrator in his department.

*Resolved*, That in the early loss of Dr. Bailey, his family have lost a loving father and friend, and the profession an intelligent, earnest and devoted practitioner, one whose aim was ever to advance and promote its best interests.

*Resolved*, That we tender to his bereaved family our heartfelt condolence and sympathy in their deep affliction, ever remembering that "the ways of Deity are past finding out," and that "He doeth all things well."

*Resolved*, That a copy of these resolutions be transmitted to the family of the deceased, and that they be published in the several Dental Journals.

G. T. B.

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### PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

The regular monthly meeting of the Association was held June 14, 1864. The President, Dr. Fouché, in the chair.

Dr. Buckingham announced the sudden death of Dr. E. N. BAILEY, an active member of the Association; and moved the appointment of Drs. Barker and Peirce as a committee to draft resolutions, expressive of the sentiments of the meeting in relation thereto.

The committee reported the following, which were unanimously adopted,

after which appropriate and feeling remarks were made by Drs. Barker and Buckingham, upon the character of the deceased, as a man and associate, and of the energy with which he had sought to advance the reputation of the profession, in the few years allotted him of active life :

*Whereas*, In the death of our esteemed associate and active co-laborer, Dr. E. N. Bailey, this Association feel that they are called upon to lament the loss of one of their most active members ; and one who, by his past energetic and earnest co-operation in all efforts put forth to advance the standard of professional excellence, deserves more than a passing tribute.

*Resolved*, That the departure of Dr. Bailey from this field of activity, inculcates the serious lesson to each one of us, his friends and associates, to reverence his memory by increased efforts to enlarge the usefulness and cherish the character of the profession, to which his short career was so untiringly devoted.

*Resolved*, That while fully aware of the inadequacy of words upon the occasion of such bereavements, yet we tender to the family our earnest sympathy in this, their hour of affliction, and sincerely trust that the benevolent hand of time may yet prove to them that these

“ Severe afflictions,  
Not from the ground arise,  
But oftentimes celestial benedictions  
Assume this dark disguise.”

*Resolved*, That a copy of these resolutions be forwarded to his family, and also to the Dental Journals, for publication. Adjourned.

JAMES TRUMAN, Secretary.

At a meeting of the dentists of Lowell, Wednesday evening, May 18th, the following preamble and resolutions were adopted :

*Whereas*, It has pleased the Great Dispenser of events to call from earth our esteemed professional brother and fellow-citizen, Dr. SAMUEL ABBOTT; therefore,

*Resolved*, By the Dental profession of Lowell, that by his death we have lost an honorable member of our fraternity, and the public a useful and worthy citizen.

*Resolved*, That we deeply sympathize with his afflicted family and friends in this their sad bereavement, and invoke, in their behalf, the comforting spirit of Him who doeth all things well.

*Resolved*, That a copy of these resolutions be respectfully tendered to the family of the deceased, also published in the papers of the city, and in the *Dental Cosmos*, *Dental Times*, and *Register of the West*.

G. A. GERRY, Secretary.

A. LAWRENCE, Chairman.



# PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE NINTH ANNUAL SESSION, 1864-'65.

## TRUSTEES.

HENRY C. CAREY, PRESIDENT,	GEORGE TRUMAN, M. D.,
W. L. ATLEE, M. D.,	S. DILLINGHAM, D. D. S.,
DANIEL NEALL, D. D. S.,	G. B. MOREHOUSE, M. D.,
ELLESLIE WALLACE, M. D.,	THOMAS WOOD,
BENJAMIN MALONE, M. D.,	J. R. McCURDY,
W. W. FOCHE, D. D. S.,	CHARLES HAMILTON, Sec'y.

## FACULTY.

J. D. WHITE, D. D. S.,  
*EMERITUS PROFESSOR.*

T. L. BUCKINGHAM, D. D. S.,  
*PROFESSOR OF CHEMISTRY AND METALLURGY.*

C. N. PEIRCE, D. D. S.,  
*PROFESSOR OF DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.*

E. WILDMAN, D. D. S.,  
*PROFESSOR OF MECHANICAL DENTISTRY.*

G. T. BARKER, D. D. S.,  
*PROFESSOR OF PRINCIPLES OF DENTAL SURGERY AND THERAPEUTICS.*

W. S. FORBES, M. D., D. D. S.,  
*PROFESSOR OF ANATOMY AND PHYSIOLOGY.*

JAMES TRUMAN, D. D. S.,  
*DEMONSTRATOR OF OPERATIVE DENTISTRY.*

E. N. BAILEY, D. D. S.,  
*DEMONSTRATOR OF MECHANICAL DENTISTRY.*

**The Lectures to the Regular Course will commence on the 1st of November and continue until the 1st of March.**

During the last two weeks of October, preliminary Lectures are delivered, one each day.

The Rooms for Operative and Mechanical Dentistry are open from the 1st of October and throughout the session, under the supervision of the Demonstrators.

The Dissecting Room, under the superintendence of the Professor of Anatomy and Physiology, is open during the session.

<b>Fees for the Course,</b> (Demonstrators' Ticket included,)	-	<b>\$100</b>
<b>Matriculation,</b> (paid but once,)	-	<b>5</b>
<b>Diploma Fee,</b>	-	<b>30</b>

C. N. PEIRCE, Dean,

C. P. REESS, Janitor.

501 North Seventh St., Philadelphia.

P. S.—Board may be had at from \$3.50 to \$6.00 per week.

## PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Ninth Annual Session, 1864-1865.

The ninth annual session of the Pennsylvania College of Dental Surgery will commence on the first of November, and continue until the first of March. Preliminary lectures will, however, be delivered each day during the latter half of the month of October. The Dispensary and Laboratory of the College will also be open from that time, where ample opportunities will be afforded for the prosecution of the practical part of the profession under the daily supervision of the Demonstrators, who are gentlemen of known integrity and thorough capability. During October, as well as the entire session, a clinical lecture will be delivered, and operations performed by one of the Professors every Saturday afternoon.

The course is so arranged that fifteen lectures are delivered each week, on the various branches taught in the school. A synopsis of the manner in which each department is treated will be found under the head of the different chairs.

These lectures occupy about the average time of three hours each day. In addition, four hours are daily spent by the student in actual practice. With this object in view, the operating rooms are furnished with twenty chairs, so arranged as to command the best light, and all the appliances necessary for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate.

Each student is required to provide his own instruments, (except those for extracting,) and to operate with them. He is expected to keep them in perfect order, and for that purpose is provided with a table in which they can be locked up when not in use. As the operations performed at the College are entirely gratuitous, a superabundance of patients invariably present themselves.

In the mechanical department every process known in the profession, which has any value to the mechanical dentist, is fully taught; and receipts of valuable compounds are freely imparted. All the conveniences are at hand in the Laboratory for the preparation of metals, manufacture of teeth, (single and in blocks,) mounting, etc.; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression to the thorough construction of the denture, and proper adjustment of it in the mouth of the patient.

In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of Dentistry, the celebrated hospitals and clinics of the city constantly enable the student to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Blockley Hospital, in particular, one of the largest eleemosynary establishments in the world, are open to Medical and Dental students, free of charge. The staff of this institution is composed of some of the most eminent physicians and surgeons of Philadelphia.

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## COURSE OF LECTURES.

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### CHEMISTRY AND METALLURGY.

The course of instruction from this chair will commence with the consideration of the imponderable substances.

The laws that govern the imponderable bodies will next claim attention, with some notice of symbols or chemical notations. Individual elements, and the compounds resulting from their combinations, will then be considered. Organic chemistry will receive its full share of attention.

The course will be illustrated by diagrams and such experiments as can be performed before the class.

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### DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.

The lectures in this department will embrace the Physiological Anatomy of the teeth, general and microscopical, in addition to a minute and careful description of the various operations performed by the dental practitioner.

The microscope, models and diagrams, will be employed in illustration.

At the Clinic the incumbent of this chair will also demonstrate before the class the various operations described in his course of lectures.

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### MECHANICAL DENTISTRY.

The instruction from this chair will embrace the entire range of manipulations legitimately connected with the laboratory, arranged in two divisions—Mechanical Dentistry proper, and that to which has been applied the appellation of the Plastic department.

I. *Mechanical dentistry proper* will include everything appertaining to the construction of dental substitutes, passing through the different stages of preparation, from taking the impression, to the completion and proper adjustment of the case in the mouth, conjointly with features, expression of countenance, enunciation, etc. It will likewise embrace the metallurgic treatment of the various metals employed, the preparation of plate and wire, the alloying of gold, together with the *alloys* used, as well as those designated as *solders*.

II. This division will comprise all that appropriately belongs to the manufacture of porcelain or mineral teeth—single teeth, block-work, continuous gum-work, vulcanite, etc. The materials, their preparation, compounds and uses, will be specially regarded.

All new inventions, modifications, and improvements, in this branch of the art, will in place receive due attention and investigation.

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## PRINCIPLES OF DENTAL SURGERY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist.

They will also include a careful examination of therapeutic agents and their general application. Their indications in the medical and surgical treatment of diseases of the mouth, both idiopathic and-symptomatic, will be fully illustrated, and also the general hygienic rules and principles which come within the province of the practitioner.

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## ANATOMY AND PHYSIOLOGY.

The instruction in this department will embrace a plain and comprehensive view of the structure and functions of the Human Economy. The valuable anatomical preparations of the incumbent of this chair, (consisting of Papier Mache manikins, models in wood, drawings, wet and dry preparations,) will enable him to fully illustrate his course. With the same object, vivisections on the lower animals will also be employed.

The special relations of this branch to the wants of the dentist will be kept steadily in view, and such descriptions of the natural history, microscopical structure, connections, &c., of the teeth, as their importance demands, will be given.

The great facilities for the study of practical anatomy, to be found in the city of Philadelphia, obviate the necessity of providing a dissecting-

room in the College. For the usual fee of \$10, the student can have access to one of several well-ordered and well-supplied dissecting-rooms.

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### REGULATIONS.

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The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College; five years' practice, inclusive of the term of pupilage, will also be considered equivalent to the first course of lectures. The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done, at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees; and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

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### TEXT BOOKS AND WORKS OF REFERENCE.

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Wilson's, or Leydy's Sharpey & Quains' Anatomy; Carpenter's Physiology, or Dunglison's Human Physiology; United States Dispensatory; Mitchell's Materia Medica; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; C. J. B. Williams' Principles of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Paget's Surgical Pathology, or other standard works on the subject.

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INFLAMMATION.

BY T. EMBLEY OSMUN, M. D., D. D. S.

In medicine, the term inflammation is used to designate a morbid state of any part of the body, which is characterized by an afflux of blood in the capillary vessels, increased heat, redness, swelling, and a painful tension of the tissues. These phenomena present different degrees of intensity, depending on the structure of the part affected, its relations and the constitution of the individual. Inflammations are divided into two classes, *acute* and *chronic*, and the phenomena that attend them particularly affect the circulation in the capillaries. These phenomena are characterized by, 1st, a contraction of the radical vessels, the capillaries proper not yet being visibly affected; 2d, by repletion and dilatation of the capillaries, accompanied by retarded and irregular circulation, (congestion;) 3d, by complete stasis, accompanied not only by dilatation of the capillaries, but also of the radical arteries and veins of the part affected.

These phenomena may be followed, 1st, by the resolution of the inflammation, that is, by the separation of the accumulated globules, and the restoration of the circulation in the part, beginning at the periphery and proceeding towards the centre. If this resolution takes place rapidly, and is not accompanied by an inflammation of any other organ, the inflammation is said to disappear by *delitescence*; if, however, the resolution of an inflammation of one organ be accompanied by the appearance of an inflammation of another organ, then there is said to be *metastasis*; in accordance with the opinion that once prevailed, in such cases, the morbid principle was transported from the one organ to the other; 2d, they may be followed by *induration*, that is, by the formation of anatomical elements, the form of which may be various, between the normal tissues, 3d, they may be followed by *suppuration*, that is, by the formation of pus globules at the expense of the exuded liquid, accompanied by the separation or destruction of a portion of the inflamed tissue; 4th, by *gangrene* or *mortification*, that is, by the cessation of the phenomena of nutrition and the consequent destruction of the tissues by putrefaction.

The indirect causes of inflammation are sudden cold, contusions, wounds, the introduction of agents that destroy the tissues, such as acids, &c., or of such poisonous or virulent matter as produces syphilis, adenitis, &c. The direct causes are little known. Thus it is not known why, in a case of sudden cold, the lungs are more frequently the seat of inflammation than the pleura; nor is it known how these diverse causes produce a contraction of the blood vessels, and particularly of the capillaries, and subsequently their dilatation.

The part played by the different elements of the tissues are the following: 1st, although the capillaries are essentially the seat of any inflammation, yet the arterial as well as the venous radicals, both play an important part in the various inflammatory phenomena. At first the arterial radicals contract, in consequence of which the circulation in the part is accelerated. This contraction may diminish the diameter of the vessels, in exceptional cases, one-half. At first the contraction is regular, but soon it is confined to points between which there is an ampullaceous dilatation. This contraction even continues until after the intermediate capillaries become gorged with globules, and are distended considerably beyond their normal size; the dilatation then extends first to the venous and afterwards to the arterial radicals, in which the distension is proportionably greater than in the capillaries. There are, however, always points at which the vessels retain their normal size, or even remain contracted, while the intervals are irregularly dilated; 2d, while the radicals are still contracted, the red globules accumulate in the capillaries where they circulate slowly, although they now approach the walls of the vessels and occupy the space which, in health, is filled by the serum. The result is that the mass of globules filling the capillaries is larger than in the normal state, giving the vessels the appearance of being dilated before their diameter is in reality increased. The globules become more and more crowded and irregular in their movements, when coherence and stasis in the distended capillaries follow. If the inflammation disappears by resolution, then the contracted vessels in the neighborhood of the stasis reassume their normal diameter, which allows the blood to press more forcibly on the stagnant globules, receiving them in the current either singly or in masses, to be separated later. Thus the circulation is re-established; 3d, when suppuration or gangrene takes place, both the red and white globules become so coherent and soldered together, that it is difficult to trace their outlines in the mass, which assumes a deeper color than that of the blood. Complete stasis of the globules may also take place in those cases where the inflammation disappears by resolution. This, however, has been denied upon the hypothesis that if there were complete stasis, mortification of the tissues must necessarily follow; but those who

held this opinion were ignorant of the fact that the globules of the blood can exist, for a time, without circulating or passing through the lungs, and that the other elements can also exist without taking anything from or rendering anything to the serum of the blood, by borrowing the elements of nutrition, when they are deficient in serum, from the adjacent tissues. These phenomena are, nevertheless, confined within certain limits of time and space, and if they are exceeded, or if any contagious matter has been introduced into the tissues; as, for example, that of a carbuncle, mortification follows; 4th, the serum is transuded through the parietes of the capillaries wherever the circulation of the blood is modified, and that to such an extent as to leave the globules alone, accumulated and closely pressed into the points where there is complete stasis. This transudation varies in its character according to the structure of the tissue inflamed. The nature of the elements affected, their texture, the rapidity with which the stasis was established, have also an influence on the quantity of liquid exuded. In proportion as the stagnant globules are deprived of their serum by exudation, they borrow of that liquid from the contiguous parts where the blood still circulates. Dilatation of the capillaries, accumulation of the globules and exudation, are the three phenomena that cause pain, redness and tumefaction, and the pain is in direct ratio to the tumefaction, or to the pressure or contraction produced by the dilatation or exudation, when the part is surrounded by unyielding tissues, such as bone, tendon, &c.

The exudation is the cause, 1st, of the infiltration, and according to the nature of the liquid exuded, its quantity, &c., of suppuration, which suppuration is more or less rapid, according to the nature of the tissues, where it takes place; 2d, of the production of anatomic elements, whence induration; 3d, of the birth of diverse morbid productions, according to the nature of the elements engendered, and according to the energy of their developing properties.

Finally, pathologists have considered as the consequence of chronic inflammation, a number of changes in the glands and in the serous and mucous membranes, which are nothing else than the result of a multiplication or of an accidental development of elements proper to these tissues.

The increased heat is not caused simply by the afflux of blood in the dilated vessels, but also by the modifications of the phenomena of nutrition, under the influence of the sympathetic nerve; for experiments have demonstrated that with this nerve divided, there is an elevation of temperature in the organ to which it leads, although the vessels are tied so as to cut off the supply of blood.



## ALVEOLAR ABSCESS.

BY REGINALD H. SHOEMAKER, D. D. S.

Alveolar abscess, from the commencement of a departure from the normal condition of the periosteum of the tooth to its final cure, presents five distinct stages: determination, congestion, inflammation, suppuration, and adhesive inflammation, each of which conditions it is proposed to discuss.

Determination is the first phenomenon presented, which may be defined as increased vascular action. Although this condition may be considered as abnormal in the present case, yet it cannot be said that the periosteum is diseased. There is an increased flow of arterial blood consequent upon slight irritation, caused by using the tooth unduly, as in biting off threads, or in a badly articulated artificial denture. In these cases, when it is chronic, although it may produce no noticeable uneasiness, yet it is apt to cause hypertrophy of the cementum of the tooth, which it nourishes. In such cases it is merely necessary to remove the irritant. But if the irritant is persistent, the periosteum passes on to the next condition, that is congestion, which is a true disease, and is generally called periostitis. It is characterized by an increased amount of dark blood, which circulates slowly in the distended veins and capillaries until stagnation may be finally produced.

The cause of this condition is irritation, generally produced by the pulp of the tooth having become first inflamed, and thence through the foramen at the apex of the fang the periosteum becomes affected. Periostitis is very liable to supervene after the treatment of a tooth of a person of a strumous or scrofulous diathesis. The cases of periostitis being thus generally connected with the pulp of the tooth, congestion, and thence the abscess, is nearly always at the apex of the fang; it is, however, often in the bifurcation of the fangs of the molars, and sometimes even on the side of a fang.

The first effect of congestion is an effort of the distended vessels to relieve themselves of their contents by the transudation of the watery constituents of the blood into the surrounding tissue, giving rise to what is called œdema, which is simply the Greek word for a swelling. The symptoms are, at first, a sensation of uneasiness and tension. The tooth seems slightly elongated in consequence of its being raised in its socket, so that the patient feels a desire to press it back into its place, which, for the moment, affords relief. This sense of uneasiness is followed by a dull, heavy pain as inflammation supervenes. The treatment of congestion consists in local depletion and systemic antiphlogistic remedies.

The local depletion may be accomplished by lancing or scarifying the gums opposite the diseased fang, or, what is better, by applying one or

two Spanish leeches. The latter plan is much more effectual on account of the continued bleeding after the leeches have dropped off, caused by a poisonous secretion left in the wound, which prevents the ready coagulation of the blood. In the first stages cold applications are useful, as ice held against the gums, which acts as an astringent, contracting the vessels and lessening the flow of blood to the part. Iodine may be applied to the gums with a camel's-hair brush. If the fang of the tooth is open, it may be filled with nitrate of potash, which acts as an arterial sedative. The systemic treatment consists in the administration of the ordinary antiphlogistic remedies, as the citrate of magnesia.

If the congestion is not overcome, it passes on to inflammation. This stage of the disease is characterized by an increase of the temperature, pain, and swelling in the periosteum. The gums around the tooth present, besides the above symptoms, that of redness also. The inflammation spreads to all the surrounding tissues, affecting the face and cheeks so as sometimes to close the eyes. There is an increase in the size of the blood-vessels, and in the quantity and rapidity of the flow of the blood, with a tendency to its arrest and stagnation at points, caused by the clogging up of the capillaries by the red corpuscles, which are more closely packed on account of the draining away of the liquor sanguinis.

The redness of the mucous membrane, next to the fang of the tooth, varies according to the degree of inflammation, being darkest at the centre of the disease, and gradually returning to the color of the healthy tissues as its distance from the centre increases. The redness disappears under pressure of the finger, the gums becoming white, but the color returns upon removing the pressure. The quicker the return to redness the greater the activity of the disease. This redness is due to the accumulation of the red corpuscles in the dilated vessels.

The swelling is due to an increase in the size of the vessels in consequence of the excess of blood. In the more advanced stages of the inflammation it is due also to the effusion of lymph, and an abnormal growth from its organization. In consequence of the swelling at the apex of the fang, and the unyielding nature of its socket, the tooth is raised considerably.

The pain is sometimes of a pulsating character, and is generally very severe as the disease advances, owing to the exalted sensibility and compression of the nerves, so that the patient cannot endure to have the tooth touched, as the pain is aggravated by pressure.

The temperature of the inflamed parts rises above the normal standard, appearing, however, much greater to the patient than it really is. This increase of the temperature is due to the increase in the waste and oxydation of the tissues.

Two kinds of treatment may be resorted to when the disease has reached this stage. One plan is to induce resolution or a return to health, which may be accomplished by the same treatment as is used for congestion. Its success is, however, much less certain. The pain may be alleviated by the application of the tincture of aconite root to the gums. Care must be taken in the use of this drug, as it is very poisonous, five drops being a dose. After resolution, inflammation is more easily excited a second time than at first.

The second kind of treatment is used after resolution is despaired of, to hasten suppuration. This is accomplished by means of a hot application to the gums, and never to the cheeks; for, if applied to the cheek, it may draw the abscess to the external surface, producing a very disfiguring scar after the fistula has healed. The best thing for this purpose is a roasted fig. A hop poultice and laudanum may be applied externally to the cheek as an anodyne and soporific. It should be covered with oiled silk to retain the active principles. Which mode of treatment is the better must be determined by the circumstances of the case.

As inflammation advances there is an effusion of a substance called lymph, of which there are two kinds, the plastic or fibrinous, and the aplastic or corpuscular. The first is the true lymph, and capable of organization when in contact with living tissue. As its name indicates, it is composed of fibres floating in a serous fluid. The second is incapable of organization, and instead of fibres is composed of what are called exudation corpuscles. The two kinds are generally found together.

This lymph is susceptible of three changes: absorption, development, and degeneration. Lymph is absorbed when inflammation terminates by resolution. The other two changes will be considered in the fourth stage of the disease, namely, suppuration. As the disease reaches this condition, the periosteum becomes separated from the fang of the tooth, and the intermediate space is filled with lymph, part of which, where it is in contact with the living tissue, becomes organized by the projection of nutrient vessels into it in the form of loops, and thus a sack is formed. This development of lymph forms what was formerly called the pyogenic membrane, because it was supposed to secrete pus, but is now more properly called the limiting membrane, as it is now known not to be a secreting tissue.

After the membrane has formed, the remaining lymph undergoes degeneration, one of the exudation corpuscles becoming dead in the centre of the sack, and the process continuing until all the lymph has become what is called pus, which, when formed in a person of a healthy constitution, is an opaque creamy fluid, with a greenish tinge and disagreeable odor.

It consists of pus cells floating in a serous fluid called liquor puris. The cells are the dead exudation corpuscles.

When pus is formed on a free surface it is called a purulent secretion; when in the substance of parts, as we are now considering it, an abscess.

The formation of pus is generally indicated by the throbbing character of the pain, slight fluctuation under the finger, and the mucous membrane becoming puffy, glazed and shining. There is often much constitutional disturbance, as chills and fever. When all the lymph has been changed into pus, the limiting membrane continues to enlarge by a deposition of lymph externally, and by degeneration internally, forcing itself against the surrounding tissues, and promoting absorption in them so as to obtain an outlet, which it generally effects opposite the diseased fang, though frequently it burrows for some distance before coming to the surface. It sometimes follows the sutures of the superior maxillary and palate bones. If a molar tooth is diseased, the abscess may break into and produce disease of the antrum. The pus sometimes comes out around the neck of the tooth, separating the periosteum from the fang along its whole length.

After the pus is once discharged, if the disease assumes a chronic character, the sack again fills with pus, which is again discharged through the same opening; this action being repeated until a cure is effected. In a healthy state of the system it may take a good while for the sack to fill, but if there is any exciting constitutional cause, as a cold, it may take but a very short time. In this condition, the disease generally runs through its course with little or no pain. For the treatment of this stage there are three methods: first, to remove the exciting cause, as a dead pulp; secondly, to lessen inflammatory action by proper antiphlogistic remedies; and, thirdly, to facilitate the escape of pus, to arrest its formation, and to promote absorption of the sack. This alone needs special attention here. If, when the patient presents himself, pus has formed but has not yet found an exit, and has advanced into the cheek, it should be lanced, if possible on the inside, but if not, the tooth should be extracted rather than let the abscess open externally. After the fistula has formed, and the pus has been discharged, the abscess should be treated with creosote, tincture of iodine, or nitrate of silver in solution. The object of the agent is to cauterize the sack and promote its absorption.

Some prefer to pass an instrument through the fistula into the sack and dissect it off the fang, and then inject the agent by means of a tent of cotton or floss silk, or with a hard rubber syringe with a gold nozzle. This mode of treatment can only be adopted where the fistula is opposite the fang. If, however, it is possible to treat it through the fang, I think it is preferable on account of its giving the patient much less pain, and because you are more certain of what you accomplish. In employ-

ing this method you must be sure that the fang is thoroughly cleansed, and that there is a free opening into the sack through the foramen at the apex. Then slightly serrating the end of a broach, and wrapping cotton tightly around it, you soak it in the agent and pump it into the sack through the foramen, by using the broach as a piston, until the drug is seen coming through the fistula, indicating that the sack has been completely cauterized. This treatment should be repeated every day or two until a cure is effected.

The fifth and last stage, adhesive inflammation, is that condition under which the abscess and fistula heal, and is induced by the caustic used. Healthy lymph is thrown out, which becomes developed and organized, forming the cicatrix. The periosteum embraces the apex of the fang, but does not become united to it again as at first, so that this part of the fang is completely necrosed. When the fistula has extended through the cheek, the cicatrization of the fistulous canal forms a hard cord from the tooth to the surface of the cheek, drawing in the latter on account of the contraction in healing. This cord may be cut by passing the lance below it, and then drawing it quickly and firmly up.

GERMANTOWN, Sept. 13, 1864.

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### THE ARSENIACAL PASTE.

BY GEORGE W. CALDWELL, D. D. S.

In the examination of this preparation I shall not only take into consideration the properties and virtues of the "Arsenical Paste," as an agent for destroying the vitality of the pulp, but also of each ingredient of which it is composed.

It is composed, as is well known, of three ingredients, namely, acidum arsenicum, morphia sulphas, and creasotum. The relative proportions of the arsenious acid and sulphate of morphia are varied considerably by different practitioners; the formula of some being equal parts, others recommend twenty grains of the arsenious acid to thirty of the morphia; this by many is reversed, making thirty grains of the acid to twenty of the morphia. The formula of Dr. J. D. White of this city, who claims to be among the first to introduce the arsenious acid into a paste, is highly recommended. It is composed of the proportions already named, arsenious acid, grs. xxx.; sulphate of morphia, grs. xx. and creasote qs. In these proportions the paste has a very decided effect, and although the quantity of arsenious acid used is much greater than is recommended by some, yet no danger, from its application, may be apprehended, if it is properly prepared, applied and attended to. The mode of its preparation is of the utmost importance. The arsenious acid and morphia should be well mixed in a mortar, the creasote being added gradually, until it becomes

of the consistency of cream; it should be triturated for not less than half an hour. This is considered entirely unnecessary by many, on the ground of the inability of creasote to dissolve and hold in solution the arsenious acid. This is true; but by triturating the paste for a sufficient length of time, it is evident that we secure an equal distribution of the arsenious acid, and by making a paste in small quantities, and at frequent intervals, we overcome, in some degree, this difficulty. The manner and time of its application is also important. The pulp in many cases needs some preparatory treatment. If it is highly inflamed, it has been recommended to first make an application of morphia and creasote, and afterwards of the paste. The pulp should be thoroughly exposed, removing all foreign bodies, in order to allow the paste to act directly upon it. By this mode of treatment it is destroyed in a much less space of time, and also with less pain to the individual, than if there were intervening dentine or foreign substances. The length of time for its application should be from twenty-four to forty-eight hours, and no longer. (I speak now of those formulæ in which the arsenious acid predominates.)

It is contended by some that no injurious effects will result in allowing it to remain for an indefinite period of time—some extending it even to weeks and months. Now we know that some medicinal remedies are liable and capable of being absorbed, producing all the effects of the medicine; this has been proved beyond a doubt by frequent and satisfactory experiments, and among these “Arsenious Acid;” hence it follows that the acid having completed its office, the destruction of the vitality of the pulp, its action will not cease here, but will extend to the peridental membrane and periosteum of the alveolus, causing their inflammation and, perchance, death. Hence we have complete necrosis of the tooth. Especially is this likely to occur in the bicuspid teeth, as we generally have the fangs much contracted, consequently a very thin layer of dentine and cementum existing between the pulp cavity and the peridental membrane.

Now, since twenty-four to forty-eight hours are sufficient to destroy the vitality of the pulp in the majority of cases, and clinging to the old maxim that “an ounce of preventive is worth a pound of cure,” I deem the first method the proper one, because the safer, and therefore prefer it.

I now pass to the ingredients, and shall examine each separately. Arsenious acid being the principal, first occupies our attention. It was first used by Mr. Spooner, of Montreal, in 1836, for destroying the vitality of the pulp. He, however, simply used the dry arsenious acid, without combination with any other substance; its introduction into the present paste being of quite recent date. Arsenic is a metallic substance, found in a combined state with iron, cobalt and other ores, from which it is liberated

during the process of smelting; it is then converted by combustion into arsenious acid, and after resublimation is collected in small crystalline masses, from this state it is frequently reduced to a powder.

Metallic arsenic being inert, we use the oxide of arsenic, or arsenious acid prepared as above. The acid, in the powdered form, is very liable to be adulterated by the sulphate of lime and powdered chalk; these may be detected by exposing the powder to a heat sufficiently great to induce the evaporation of the arsenious acid; the impurities will remain in the vessel used. In testing the purity of the acid in this manner, care should be taken not to inhale the fumes, they, of course, being poisonous. Owing to the adulterations in the powder, it is preferable in preparing the paste, to use the acid in the crystalline form, those small crystals which were formerly denominated the "flowers of arsenic;" these may be reduced previous to making the paste, or in triturating it, they will be reduced sufficiently. By this, we obviate the necessity of testing the arsenious acid. If the acid used should be adulterated, and therefore not equally distributed, it is evident, that in making an application of the paste to the pulp, an excess or deficiency of the acid may be present, and, of course, the result can but be widely different. Some dentists condemn the use of the arsenical paste, on account of not being able to obtain a uniform result. Now, may it not be due to this cause? For instance: a dentist will purchase a quantity of arsenious acid, obtaining it in a powder, on account of being able to mix it in a less time, and with less trouble, than if it were in small crystals; he then prepares it in a hasty manner and makes an application to the pulp. The quantity of the paste usually employed is about the one-twentieth of a grain; now, if the arsenious acid which he used was adulterated, and consequently not equally distributed, it is evident that two-thirds of the one-twentieth may be some adulteration, perhaps chalk, and when he removes the paste, he finds, to his great surprise, that the pulp, instead of being dead, as he expected, is only more highly inflamed, and giving intense pain; and for this, he condemns it. On the other hand, suppose two-thirds of the one-twentieth is arsenious acid, (which is too large a quantity to be used,) here, when he removes the paste, he not only finds the pulp dead, but ten to one, if the tooth is not dead also, by the action of the paste having extended to the periosteum of the tooth, producing complete necrosis, and for this reason he condemns it. Hence, I think that too much care cannot be exercised in obtaining a pure article, if it is desirable to use the powder. For the purpose of destroying vitality, arsenious acid has no equal, not only in its certainty of producing the desired result, but also causing less pain than any other substance which has been used for the purpose; here lies its superiority over chloride of zinc, which,

being a violent escharotic, produces intense pain. The action of arsenious acid, strictly speaking, is not that of the true escharotic; the result of its action being the destruction of the vitality of the tissue to which it is applied, and not the tissue itself; while the true escharotic destroys the tissue, the loss of vitality being consequent. Arsenious acid, like many other medicinal agents, has been subject to much undeserved censure on account of its being used very indiscreetly by persons claiming to be dentists.

Many objections have been made against its use; among these, and the principal one, is its liability to be absorbed, producing inflammation and death of the periosteum. That it has, in some cases, been absorbed, producing these evils, it would be useless to deny; but I think that by careful examination of the cases in which it has occurred, it will be found in nine out of ten, that it was either due to the improper manner of preparing the paste, the excess of it used, or negligence on the part of either the dentist or the patient, in allowing the paste to remain too great a length of time. Some persons are peculiarly susceptible to the action of arsenious acid, the smallest portion producing violent effects; as in persons of a scrofulous diathesis. It is the duty of the dentist to notice these idiosyncrasies of his patients and act accordingly, applying the paste with great care, allowing it to remain but a short time, without an examination, and instantly removing it on the slightest signs of too severe an action, or as soon as vitality is destroyed.

Previous to its introduction into the paste, arsenious acid was used for destroying the vitality of the pulp without being combined with any other substance. This was objectionable; because the acid being an irritant, and the pulp in an inflamed condition from external exciting causes, it is evident that by applying an additional irritant in the form of arsenious acid we increase the inflammatory action, thus rendering it extremely difficult, if not impossible, for the acid to act; but by applying an anodyne in the form of morphia, and a styptic, and antiseptic combined in creasote, we reduce, in some degree, the inflammation, and allow the acid to act with much more facility than when alone.

Arsenious acid has been, and still is, used by many, as an agent for obtunding that exalted sensibility to which the dentine is incident; here it is objectionable on account of its liability to absorption by the dental tubuli, and, being carried to the pulp, producing inflammation and death of that organ. Especially is this the case in the deciduous teeth, or in the permanent teeth of young persons, where we find a large proportion of animal matter in the dentine, and, as a consequence, the tubuli much larger than in the adult—as the individual advances in years, this objection becomes lessened on account of the tubuli consolidating. Cases



have occurred, however, in persons quite old, of the death of the pulp, from absorption of the acid, when applied for this purpose. I now pass to the sulphate of morphia, and shall give it but a brief notice.

The manner of its preparation, as given in the United States Dispensatory, is as follows: "Take of morphia, in powder, an ounce; distilled water, half a pint; diluted sulphuric acid, a sufficient quantity; mix the morphia with the water, then carefully drop in the acid, constantly stirring, until the morphia is saturated and dissolved. Evaporate the solution by means of a water bath, so that it may crystallize upon cooling; dry the crystals upon bibulous paper." In this process the morphia is known to be saturated when it is wholly dissolved by the water. To ascertain if the acid has been added in excess, litmus paper may be resorted to. Sulphate of morphia is a narcotic and an anodyne, acting directly on the nervous power, diminishing the sensibility of the nervous system, allaying pain, inordinate action, and restlessness. In combination with a caustic, as arsenious acid, it diminishes the pain and irritability which would otherwise ensue, and by its narcotic effect, decreases the sensibility of the part. Having these general properties, it is admirably adapted to form one of the ingredients of the arsenical paste. The acetate of morphia is used by some in preference to the sulphate. This possesses no advantage over the sulphate, as the therapeutical effects of one are precisely those of the other.

Sulphate of morphia is used for relieving sensitive dentine; here it acts by its narcotic effects, decreasing the sensibility of the nerve fibrils in the tubuli. It is, perhaps, the most efficient agent that can be employed for this purpose, as no danger can result from its application, through absorption, and should this occur, it would produce the beneficial effect on the pulp of allaying the slight irritation which always exists when the dentine is affected in this manner.

I now pass to the last ingredient of the paste, namely, creasote. This is a clear, oleaginous, colorless liquid, obtained by distillation from tar and crude pyroligneous acid, having a burning, acrid taste, and a disagreeable odor resembling that of smoked meat.

It is a styptic, narcotic, antiseptic, astringent, and slightly escharotic. It possesses the property of forming an insoluble compound with albumen. The several therapeutical properties combined in it, render it not only a valuable addition to the arsenical paste, but also, to the list of dental remedies. It is the only substance that can be advantageously used for the purpose of holding in combination the arsenious acid and sulphate of morphia, except carbolic acid, which has many of the properties of creasote; indeed it is considered by some to be identical with it.

The chief objection to creasote is its disagreeable odor. To remedy

this some have resorted to the use of the aromatic essential oils; these can be added without injuring in any degree the properties of the creasote. Care should be taken in introducing it into the teeth to protect the lips and tongue, as it acts as an escharotic on the mucous membrane. Exclusive of its use in the arsenical paste, creasote is extensively employed in dental practice: indeed, so much importance has been ascribed to it, as to lead to its indiscreet and erroneous use. It has been used in a diluted form for injections in diseases of the maxillary sinus. The principal use is for the treatment of alveolar abscess; here it is either passed through the fang, or the fistulous opening; and by its escharotic and caustic properties it produces disorganization and disintegration of the sack, and prevents the further accumulation of pus.

SEPTEMBER, 1864.

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### EXTRACTING TEETH.

BY T. L. BUCKINGHAM, D. D. S.

Patients dread the operation of extracting teeth, and particularly roots, more than any other operation in dentistry; therefore, any means that can be adopted by which they can be removed, with certainty and quickly, without doing more injury to the parts than is necessary, is a benefit to the operator and a relief to the patient.

It is not my intention to write a long article on extracting teeth, and describe each class of instruments separately, but merely to call the attention of the profession to one class, and point out the manner of using some of them.

I allude to the class called elevators, and I shall not attempt to describe all of this class, for there is almost an endless variety of them, each operator having some peculiar shapes to suit his fancy. I will here state, (that I may not be misunderstood in recommending these instruments,) that I do not think any instrument equal to the forceps for extracting a large majority of teeth when their crowns are sufficiently strong to allow of their use, but in cases where the crowns are broken off, or where the teeth are situated so as to prevent the free use of the forceps, the elevator is the next best instrument.

I prefer the elevator for extracting the inferior dens sapientiae to any other instrument when all the molars are in; or even in cases where the first molar is gone and the second remaining, it may be used very successfully. If we examine the position of these teeth in the mouth, and the shape of their roots, we shall see that to extract them they must be forced upward and backward, as they are situated in the angle of the jaw, and their roots curving back towards the ramus. If an attempt is made to remove them with the forceps they are very liable to be broken; the only

motions that can be given are inward and outward, which is rather across their roots than the direction to loosen them.

The elevator I use to extract these teeth has a blade slightly curving, grooved on the outside of the curve and rounded on the inside, the point nearly like an incisor forcep point, only less grooved and much thinner. The handle is large so that it can be grasped firmly.

To extract the right inferior wisdom the operator stands nearly behind the patient, the left arm passed around the head, and the chin grasped firmly with the left hand. The instrument is inserted between the tooth to be extracted and the second molar and forced well in, then used as a lever, making the molar the fulcrum, while, at the same time, a slight rotary motion is given to it. The crown of the tooth will be forced back, and, at the same time, the tooth will be raised out of its socket.

When the crown has been broken off, either by decay, or in an attempt to extract the tooth, the roots can be removed better with this instrument than any other by forcing the point down between them and their sockets, giving it a rotary motion as it goes down. The point of the instrument being nearly the shape of the root, and thin, will separate the process from the root, and when sufficiently far down use it as a lever to pry the root up, in these cases the second molar or the process may be made the fulcrum.

To extract the left inferior wisdom tooth, or its roots, when the crown is broken off, the operator stands nearly in front of the patient, and holding the chin with the left hand, the instrument is used as it is for the right wisdom tooth. When any of the roots of the inferior molars or bicuspids are to be extracted, and the tooth back of them is out, I frequently use this instrument in the manner I have already described.

It can be used to extract the superior dens sapientiae, but more care is required than for the lower teeth. The tuberosity of the superior maxillary is sometimes very prominent, and unless care is exercised in using this instrument it might be forced off.

Another kind of elevator, (or punch as it is sometimes called,) can be used very successfully for extracting roots on the right side of the mouth and occasionally on the left side. The kind I prefer is bent at an angle of forty-five degrees, about three-quarters of an inch from the point, and the outside grooved with a point that will fit closely around the root, and with a sharp edge, so that it will cut into the root and not slip off. All of these instruments should be made of good steel, well tempered, and as sharp as a lance at the part which comes in contact with the tooth or root to be extracted so that they will not slip.

To extract roots in the upper jaw, on the right side, the operator stands

behind and above the patient, the point of the instrument is inserted well up on the root, and pressure made so as to force the root in toward the tongue. To extract roots in the lower jaw, right side, the operator stands rather below the patient, so that the root can be forced up as well as in. When roots are to be extracted on the left side of the upper jaw, the instrument should be passed across the mouth so as to be applied to the lingual side of the root, that it may be forced out toward the cheek. I use this instrument to extract all the roots on the left side of the upper jaw as far front as the canine; in fact, these roots can be extracted better with this instrument than any other. The outer plate of the process being thinner and weaker than the inner, the roots can be forced outward easier than they can inward. To extract roots in the left side of the under jaw, the operator must stand nearly in front of the patient, and push them inward toward the tongue; he cannot pass the instrument across the mouth, for these roots point upward and inward, and an instrument applied on the lingual side would slip down, and pressure could only be made forcing them into their sockets. Great care must be exercised in using this instrument; the elbow should be held close to the side, and pressure made in such a way that, if it should slip off the root, it will not be plunged into the tongue or cheek. A little practice will give the operator all the confidence necessary. A knowledge of what can be done, and a determination to do it, assists very much in extracting teeth.

There is another elevator which I use for extracting the roots of the superior incisors, canines and sometimes the bicuspid. It is curved like the first, only grooved on the inside of the curve. (I think of nothing at present by which I can illustrate this curve better without a cut than the handle of a teaspoon, which has about the same curve, but does not resemble the instrument in anything else.) This instrument is used by grasping it in the hand, the thumb projecting opposite the grooved side of the blade, the point forced well down on the labial side of the root, and the thumb resting on the gum on the palatine side, the force is then made by closing the hand and making a fulcrum of the thumb. If the operator has sufficient muscular power in his hand almost any root in the upper jaw may be extracted in this way. I know a dentist who acquired great notoriety in extracting by the use of this instrument. He had sufficient power in his hand to remove not only roots but teeth, and generally the tooth would be out before the patient knew what he was doing.

When the crowns of the incisors, cuspids or bicuspid are broken off so as to not allow a sufficient hold for the forceps, this instrument may be used for a lancet, by passing the point up between the gum and root,

and forcing the process away, or in cases where it is necessary to use the forceps to cut through the process, the usual way is to extend their beaks over the gum and cut through it also, which leaves a very ugly wound. A much better way is to use the elevator I have just described, and pass it up along side of the root. If the process cannot be forced away, it can be carried up on the outside, between the gum and the process, and by passing it on both the buccal and lingual sides of the root, a place can be made for the beaks of the forceps; in this way a hold may be made as high up as necessary, and then the process can be cut through and the root extracted with the forceps. The wound does not present such a frightful appearance, and heals much sooner than when the gum has been cut through. A principle in surgery, where an operation is to be performed exposing the bone is, when possible, to have enough muscle to cover the bone, and enough skin to cover the muscle. The reason for doing so is very plain. When the bone is exposed it becomes necrosed, and then has to go through the tedious process of exfoliation before the wound heals, and where the muscle is exposed suppuration takes place; but if one is covered with muscle and the other with skin, the wound may heal by first intention.

I have described but three kinds of elevators. I use others, but not very often. Every operator has his own peculiar instruments, which, by practice, he can use better than any others; but we can sooner become accustomed to a good instrument than a bad one.

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### TOBACCO.

BY. W. W. TOWNSEND, D. D. S.

In reading the April number of the *TIMES*, I found an article on "Tobacco and Teeth," by Dr. Young. It interested me the more, as the views expressed in regard to the effect of tobacco on the teeth, were so entirely different from my own ideas and experience. Dr. Young says that smokers and chewers never have sensitive teeth. Within the last few months an intimate friend called to have his mouth put in order. I found his teeth in pretty good condition; all of the cavities small, but very sensitive—in fact the most sensitive teeth I ever operated upon. He was an inveterate "chewer and smoker." The majority of my patients who use tobacco have very sensitive teeth.

I do not wish to defend the practice of using tobacco in any form, but only desire to be enlightened upon its effects on those organs which we labor to preserve.

PHILADELPHIA, September, 1864.

## DENTAL CARIES—ITS EFFECT ON THE GENERAL HEALTH.

BY GEO. T. BARKER, D. D. S.

A paper read before the Pennsylvania Association of Dental Surgeons.

Before considering the above subject it may be proper to consider what dental caries is, and to what it is analogous. The last proposition may be answered by stating that it bears a striking resemblance to mortification, as seen on the soft parts, though differing materially from it in many of its phenomena. In both we see chemical affinities exerting their power, which previously were held in check by the life forces, but which now pass from the influence of physiological, to that of chemical laws; in both, nature doubtless attempts to arrest the disease, but it is rarely successful with dental caries, though it does occur in some instances. In mortification the disease is arrested by the obliteration of the vessels of the tissue, by plastic lymph, which forms a barrier between the healthy and unhealthy structures, so nature, where there is a strong constitution, makes the same effort to arrest decay by consolidating the dentinal tubuli with a calcarious deposition. The correct reply as to what dental caries is, cannot so readily be answered, for upon this point some of the best and most enlightened minds differ greatly. One considering it due to chemical agents alone, others to inflammation, while others advocate what may be termed the chemico vital theory. The last named theory seems to be the most plausible as its attribute to the tooth, a predisposition to decay, in consequence of the absence of a healthy balance of its constituents, whereby the power of resisting chemical agencies is lessened, and, therefore, if any exciting influences are present the tooth will decay.

A disease, let it be situated in a tissue, organ, bone, or indeed any structure, may arise from some disturbance or unhealthy balance of its own constituents. This may be seen in the teeth, and must be evident to every thinking dentist, for where the general health is not good, and the proper proportions of nutrient material are not carried to those structures, there will exist a predisposition to decay, which will be excited and developed by the presence of some foreign agent, as acid salivary secretions, or decomposing animal or vegetable matters.

Diseased structures have also the power of exciting disease in some other distant or neighboring healthy organ, by means of their vitiated secretions; by changing the blood from a healthy to an unhealthy fluid; by retaining foreign substances, so that their presence will excite either local inflammation, or by decomposition and solution create an abnormal secretion, which will in turn act upon the organ itself, and in several other ways which might be mentioned. Several examples of those above cited are witnessed in dental practice; thus may be mentioned disease of the osseous walls of the antrum, originating from the vitiated secre-

tion of the lining membrane. The presence of this secretion, if continued for a length of time, will excite the inflamed membrane to throw out a more excessive and less healthy secretion, until by its pressure and presence a disease of the osseous walls will have been excited. Another example may be witnessed in the teeth themselves; thus the conformation of a tooth may be of such a character that food will accumulate and decompose upon or around it. If continued for a length of time, caries of the tooth will probably be the result; this is particularly noticeable in those teeth that are close together, decay occurring on the approximal surfaces. The influence that is exerted upon all the organs and structures, when one is considerably diseased, has been recognized by all writers; this is more particularly observable in some diseases than in others, thus we see the wasting and general loss of power in all structures in consumption, cancerous diseases, dyspepsia, &c. This wasting is due most frequently to an absence of the proper nutritive agents of the blood. Diseases of the teeth, and particularly when they are in a carious condition, may induce systemic disturbances; the most frequent are dyspepsia and neuralgia, though several other complaints have been mentioned.

Harris relates a case where a person was declining rapidly with consumption, the disease, in his judgment, having its origin from the carious teeth and vitiated secretions of the mouth. Though it has been doubted that a due admixture of saliva is absolutely necessary for the healthy process of digestion, yet it must be admitted that abnormal salivary secretions must, sooner or later, affect the coats of the stomach, and thus modify the gastric juice. When there are a number of carious teeth in the mouth and the gums are inflamed, there will be a greater supply of saliva, as the product of the salivary glands is eliminated in greater quantity when there is any irritation of the mouth or adjacent structures; this saliva will, even when the person is not eating, pass into the œsophagus, and from thence into the stomach, where, in time, it may induce dyspepsia. One fruitful cause of disease in any part of the economy is non-assimilation, and this is due to the fact that food is not properly prepared in the stomach, so that it will yield a due supply of nutrient material for the blood as it passes through the intestines. Diseased teeth, therefore, acting through the agency of abnormal secretions may affect the coats of the stomach so that food will not be fitted for the digestive process, and, as a consequence, dyspepsia, consumption, or general debility may be established.

The term dyspepsia is most appropriate as shown by its definition—"with difficulty I concoct." It is not usual that dyspeptic persons will seek advice in its early stage of either the physician or dentist, as the disagreeable symptoms are believed to be some temporary disarrangement which

will soon pass away. The most prominent feeling is a sense of vague uneasiness in the epigastrium, which does not amount to positive pain, but is often described as more unpleasant as the person will strike himself over the stomach or upon the side, in order to obtain relief by a change of sensation. This feeling extends over the epigastric and also to the hypochondriac regions, to the chest especially, to the left side, and to the stomach and down the arms. When the stomach is empty the sense of uneasiness is greatest, but after eating there will remain a feeling of distension, weight and fullness. Besides those mentioned, there is occasionally a sense of heat, or burning, or gnawing pain arising from vascular irritation, gastralgic pains and a sense of distension from flatulency or other causes. In most cases the appetite is more or less impaired, but in others it is craving or perverted. Eructations of wind, and regurgitations of food or chyme, are exceedingly common; these regurgitations are of the nature of a sour, bitter, or oily liquid. In some cases the liquid eructated, will be of the nature of a thin, watery fluid, constituting the disorder known as *pyrosis*, or water brash. There are many other symptoms, having their seat in other parts, dependent on derangements of the stomach; the most prominent are perverted vision, tendency to low spirits, headache, giddiness, irregular pains between the shoulders, indisposition to exertion. These, with several other symptoms, may be present, but it is seldom that all occur, as they vary greatly with each individual. Where a person is dyspeptic the food which passes into the stomach remains longer than usual undissolved and sometimes is not dissolved; it then comes under the influence of chemical affinities. New substances are formed, among which acid and gaseous formations are prominent; these are eructated into the mouth where the undigested food or its ultimate chemical product act as foreign bodies, exciting the teeth to decay. It is probable that dyspepsia more often excites caries in the teeth by means of acid eructations where there is a predisposition to decay, or where the nutrient quality of the blood has been modified; but it must also be admitted that carious teeth may first induce dyspepsia, which, when established, will hasten carious action by means of acid eructations.

Several dental diseases, so called, may be traced to dyspepsia. Thus neuralgia may and often does occur from reflex nervous action, the pain being referred to some of the branches of the fifth pair, while the real seat of irritation is in the stomach. This arises frequently from undigested food, and this particular kind of neuralgia is seen in persons who are apt to indulge in the pleasures of the table, particularly late at night. The cause of this seeming transfer of pain is apparent when we remember that the nerves of the cerebro-spinal and the great sympathetic nervous sys-



tem coalesce at certain points, thus accounting for the pain being transplanted. No local remedies give relief while the pain is excruciating, and if the overtaxed stomach is not relieved serious results may be looked for. The neuralgic pain is but one of the efforts of nature to awaken the sufferer to the importance of a knowledge and regard for natural and immutable laws which govern that wonderful and intricate process of digestion.

The teeth may be affected in another way through the influence of dyspepsia which has become chronic. This has already been referred to, and it has been shown that, when the whole nutrient fluid is affected, the salivary secretions become abnormal, and the teeth prone to decay. The nutrition of the teeth may also be prevented or arrested at an early age, previous to eruption through this difficulty. This is by no means a rare occurrence, and is seen daily in the puny half-alive children which abound in the courts and alleys of our large cities, and which swell so greatly the list of mortality. This is due, frequently, to impaired constitutions of parents, but may also be induced by improper food at an early age—food which is unadapted to the wants of the tissues which are undergoing formation. With the poor mother, who is obliged to labor for her daily bread, it is often necessary to deprive the infant of the nutrient breast milk, and instead of the proper substitutes, food abounding in starchy principles is given, and, as a consequence, impaired digestion, which is dyspepsia, is induced; the child, if it lives, grows up delicate, scrofulous perhaps, but in either case with a dental organism weak and prone to early decay. But not alone do we find these dyspeptic children confined to the cottages and tenements of the poor, they are to be seen in the houses of our wealthiest and most aristocratic families; for, be it known, that it is quite unfashionable to nurse an infant, and, as a consequence, the young child is fed by a nurse, who is most ignorant of the imperative wants of nature that a due supply of nutrient material may be sent where ever and when ever it is demanded, and thus, in consequence of this neglect, dyspepsia is established, and the child's constitution is ruined. But, to pass more particularly to the subject under consideration, the effect of acid secretions on the teeth must be admitted by all. The influence of acid on the teeth has received the consideration and experimental knowledge of such men as Westcott, Harris and Richardson, and I had also the pleasure of presenting certain specimens, showing the effect of the different acids upon the teeth, at one of the former meetings of this Association, (1858.) It may therefore be considered that acid saliva, which, in its normal state is alkaline, is deleterious to tooth structure. The saliva of dyspeptic persons will usually present an acid reaction. The acid may be either lactic, acetic, or hydrochloric, either of which are solvents to tooth tissue. I

have thus briefly drawn attention to the influence of diseased teeth upon the economy, and have also shown how the same disease, when established, may accelerate and hasten carious action. The subject is one almost inexhaustible, and deserves our earnest consideration.

PHILADELPHIA, September, 1864.

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## DISCOLORED AND NECROSSED TEETH.

BY JAMES TRUMAN, D. D. S.

The general application of the term necrosis to all discolored teeth, changes its signification materially from the accepted definition. We understand in surgery, necrosis to mean death of the bone, in whole or in part. In the teeth we may have extensive discoloration, while the principal source of nutrition remains intact. In the other bones of the body, the dead portion is eventually thrown off, and the recuperative powers of nature are at once enlisted in replacing it with new bone. In the teeth this is never the case; but, if the vitality of the nutrient tissues be destroyed in part, there is no recuperative power to renew the dead portion, but the whole tooth becomes involved and must be eventually expelled from the alveolus as a foreign body, unless, under proper treatment, the function of the remaining tissue can be retained.

Our profession, owing perhaps to its youth, lacks a suitable nomenclature to describe appearances; while they possess a similarity to diseases in other portions of the body are sufficiently dissimilar to warrant specific terms.

Necrosis, as it is understood in our profession, allows of such extended application that it is impossible to compare it with the death of other portions of the bony structure, though necrosis is essentially the same in both cases.

With this comprehension of the term, as it is used, we may class this disease under two heads, partial and true necrosis. Of the former we have,

1st, Destruction of the vitality of the pulp from any of the well known causes, as from blows upon the tooth, attacks of caries, &c. The subsequent transfusion of the decomposed nerve tissue through a portion of the tubuli lying near the surface of the cavity of decay, giving the tooth a dingy blue appearance. This may occur in carious or in teeth where the nerve tissue has been deprived of vitality without external evidence of caries.

2d, The more aggravated cases from the same cause, where the whole tooth has become so much discolored as to require active treatment for its removal.

And, of the latter, we have,

3d, Teeth of a dingy yellow, with gums in an inflamed condition ; fang very much roughened ; tooth loose in the alveolus ; periosteum partially destroyed, accompanied at times with a continuous discharge of pus, though this is by no means always an accompaniment.

*Treatment.*—The first class readily yields the dark color by cutting away the degenerated dentine, so that all that is requisite in such cases is to perform carefully this part of the operation ; fill solid with gold, and the slight shade of difference in color will pass unnoticed.

The second class, the color of which runs from a light to a deep blue, presenting a very unsightly appearance in the mouth, requires more extended treatment.

Before proceeding to give the mode I have adopted to remove the discoloration and restore the tooth, if not to its normal color, to render it, at least, presentable, it may be well to preface it with a word of caution. All this class of teeth hold disease, if I may so express it, in a latent form, liable at any moment from any undue excitation from a blow or the jarring consequent upon excavation, to arouse an inflammatory condition, which, if it cannot be made to yield to treatment, may result in alveolar abscess with its complication of difficulties. The plan I have adopted, proceeding with caution, is to first cleanse the cavity of decay, if there be one, if not, opening with a drill into the pulp cavity, and removing all the devitalized tissue therefrom ; extending the operation no further the first sitting. Treat with creasote, allowing it to rest for twenty-four hours. The second sitting remove the decomposed tissue in the nerve canal, apply the creasote for a similar length of time, and at the next sitting fill the nerve canal at its junction with the foramen at the apex solidly with gold. The tooth is then ready for the bleaching process, which may be proceeded in without fear of unpleasant results.

The practice generally adopted has been rather of a palliative, than of a positive bleaching treatment. Starch, magnesia, chloride of lime, &c., have each been recommended and used to remove the discoloration, but the success attending the application has not always been commensurate with the labor expended. The first two act more in a mechanical way to displace the coloring matter contained in the dentine by the white particles of the agent used. They possess no positive bleaching properties ; hence their use is tedious and unsatisfactory. Chloride of lime, from its well known bleaching properties, was resorted to. This article depends for its bleaching powers upon the quantity of chlorine combined with the lime, which will not act upon coloring matter unless set free, rendering it almost as inoperative as the two articles first named. To overcome this

difficulty, several years ago I introduced into my practice in such cases the presentation of a weak acid in connection with chloride of lime, liberating the chlorine to some extent and giving results so satisfactory, that I think its general adoption will result in rendering many unsightly and apparently worthless teeth valuable for beauty and use.

Chlorine is set free by all the acids, sulphuric acting with great rapidity. It is important in presenting an acid in connection with tooth bone, that it be done in a way that may not prove injurious in the hands of the incautious and unscrupulous. Hence I have reduced the acid used, to the weakest possible form that will accomplish the result of disengaging the chlorine. We do not, as the calico printers in their operations, require a strong bleaching powder. As all the acids act readily on dentine, the choice, as far as the deleterious effects of an excess of any of them is concerned, is not of material consequence. I prefer in practice, tartaric acid reduced to a sharp sour or common vinegar, (acetic acid.) They will either answer the end required.

A variety of tests are used in chlorometry to ascertain the exact amount of chlorine present in a given quantity of bleaching powder; but as such exactness is unnecessary for the object aimed at in this treatment, the operator may rest satisfied, as a general rule, with the chloride of lime procurable from the shops. Should it be desired to get an approximate idea of the strength of the bleaching powder, the old and simple indigo test will be found efficient. By it the strength of the acid necessary to use, to evolve sufficient chlorine, may be graduated. To a solution of indigo, unite as much chloride of lime as it will take up, add the acid to be used until all color is destroyed.

The mode used to bring these two articles together in the tooth, is not of much moment. The plan I adopt, is to saturate a pledget of cotton with the acid, dip it in the powder and apply quickly to the cavity, sealing it with cotton and wax combined. The latter article I prefer to sandarach varnish for this purpose. The varnish uniting with the cotton and chloride of lime, hardens it into a mass and prevents the full action of the bleaching process. This application I renew every day until the tooth has reached the desired shade. The greatest change of color will be perceptible the first twenty-four hours, the thinness of the cutting edge allowing the bleaching properties to make rapid progress. The discoloration at the cervical portion of the tooth, is the most difficult to remove, but as it is less conspicuous, it has not been my habit to wait until that is thoroughly bleached before filling the tooth. That process will be continued to a limited extent after the application of the powder has ceased.

The time required to bleach a tooth of this character varies in propor-

tion to its density. From one to four weeks has been my experience. Under the most favorable circumstances the operation is a tedious one, requiring great patience on the part of the operator. The remuneration, in a pecuniary sense, will, in the majority of cases, fall far short of the labor performed; but that higher remuneration to the true professional artist—the daily increasing beauty, growing out of deformity, under the labor of hands and brain, is the sure and full reward.

The teeth that most frequently come under our care are the lateral incisors, front incisors, cuspidati, and occasionally we meet with it in the posterior teeth. We frequently find the palatine fang of the superior molars exposed its full length and deprived of vitality. Excision, where the tissues remain in a healthy condition around the other fangs, may, in this case, be used with advantage.

I recently examined a case of the second class of partial necrosis, treated after the manner detailed over a year ago. The two superior laterals very badly discolored, of a bluish yellow tint. The disfiguration was of so marked a character, that the lady came with the expectation of having them removed. In ten days the case was dismissed with scarcely a shade of difference between them and the adjoining teeth. When examined, the teeth had improved in appearance, and were otherwise perfectly healthy.

The third class are more difficult to treat and promise poorer results. Their great liability to alveolar abscess and the uncertainty attending any attempt to restore them, render the effort one of doubtful utility; but, as no tooth should be condemned until all means to save have been attempted, we are bound by our duty to the patient and the honor of our profession to make the effort.

Where the case is not complicated with a discharge of pus, cleansing out the nerve cavities and cavity of decay, external application of astringent washes, combined with the treatment as described under class 2d, may be all that will be required. Where there is a constant discharge of pus from fistulous openings in the gum, access to the seat of disease is accomplished readily through the nerve canal. If the foramen is not of sufficient size, a small drill will quickly enlarge it. The mode usually adopted to inject through the fang, is to wrap a small broach with cotton, using it as a piston. If this does not answer, recourse must be had to a small syringe with a discharge tube small enough to reach some distance up the fang. Creasote, or iodine dissolved in creasote, will be found very efficacious. Nitrate of silver in solution is also very beneficial, but great care must be exercised not to make the applications too frequent, or the symptoms may be aggravated.

## CAOUTCHOUC.

ITS HISTORY, PROPERTIES; ITS COMBINATIONS FORMING HARD RUBBER,  
AND THE MANNER OF WORKING IT FOR DENTAL PURPOSES.

BY E. WILDMAN, M. D., D. D. S.

[Continued from p. 148, vol. 1.]

In forming hard rubber, it is essential that sulphur, or sulphur in combination with some other substance, should be incorporated with caoutchouc. To this base is frequently added earths, metallic oxides, shellac, resin, pitch, bitumen, saw-dust, charcoal, &c., for purposes of utility or economy, for articles of commerce, and some of the compounds vended for dental purposes are so loaded with earths, or metallic oxides, as to render them unfit for the use they are ostensibly designed.

As the manufacturers of hard rubber compound are so very reserved as to its composition, little information can be gleaned as to its ingredients or proportions, except from their specifications of patents and from experiments. During the past year, I have made numerous experiments in making hard rubber compounds, some of which have been successful, and in due time will be given to the profession.

Nelson Goodyear, in the specification of his patent for hard rubber, dated May 6, 1851, says: In treating caoutchouc for this purpose, it is combined with sulphur, the best proportion being about equal parts, by weight, of each ingredient. By combining sulphur, in this proportion, with the caoutchouc, and subjecting the compound to the curing operation, a hard substance will be produced; but a still better result will be obtained by the introduction of magnesia, or lime, or of carbonate or sulphate of magnesia, or carbonate or sulphate of lime, or calcined French chalk, or other magnesian earth into the composition; which case, the following proportions will be found highly advantageous, viz:

One pound of caoutchouc; half pound of sulphur; half pound of magnesia, or lime, or carbonate or sulphate of magnesia, or carbonate or sulphate of lime, or French chalk, or other magnesian earth.

The proportions specified in both of these compounds may be considerably varied without materially changing the result, but in no case is it desirable to use a much less quantity of sulphur than four ounces to every pound of caoutchouc.

With either of these compounds just described, gum-lac or gum-shellac may be combined to great advantage, say in proportion of from four to eight ounces of gum-lac to every pound of caoutchouc. Rosin, oxides, or salts of lead or zinc, of all colors, and other similar substances, both mineral and vegetable, may be added in small quantities to either of the

compounds for the purpose of imparting a polish or a suitable color thereto, and for making the mixture work more easily; but no precise rule for these additions can be given; nor, indeed, is it necessary, as the taste and judgment of the operator will be his guide in this particular.

The compounds may be mixed by a masticating machine, (or by any other means employed in the manufacture of India rubber compounds,) until the several ingredients are thoroughly incorporated. The mineral ingredients mixed with caoutchouc should be finely divided, and good results are produced by reducing them, before mixture, to an impalpable powder. When mixed, the compounds are either rolled into sheets, by means of calendering rollers, or formed by moulding or other well-known processes into any desired shape.

When thus rolled or moulded, the compounds are then to be "cured." This is effected by exposing the compound to a high degree of artificial heat, using for this purpose either *steam, hot water, or hot air*. The degree of heat to which the compound is to be exposed, and the duration of its exposure, will depend somewhat upon the size and thickness of the article; but in ordinary cases, the heat should be raised to about 260° or 270° F., and the compound exposed to such heat for about four hours; as a general rule, however, it may be stated that the heat should range from 250° to 300° F., and the time of exposure from two to six hours. The compound, by undergoing this heating or curing operation, will become of a hard stiff character, in many respects resembling tortoise shell, horn, bone, ivory and jet.

In the specification of the patent of Charles Goodyear, jr., for improvement in plates for artificial teeth, dated March 4, 1855, he says: "The best compound I believe to be one pound of India rubber, or gutta percha, or of the two combined in suitable proportions with half a pound of sulphur, together with a suitable quantity of coloring matter. To obtain a suitable color, I mix with the caoutchouc or gutta percha, vermillion, oxides of zinc or iron, or any coloring substance that will stand the necessary degree of heat with the action of the sulphur. This compound, after having been moulded, is to be subjected to heat for about six hours, and in doing so, I gradually raise the heat up to about 230° F., say in about half an hour, and then, unless there be a considerable quantity of foreign matter present, the heat may be raised, quickly as may be, to about 295°, otherwise I raise the heat more slowly, and retain the compound at about that temperature for the remainder of the six hours, and then allow the whole to cool down, when the process will be completed."

For the edification of the admirers of pink rubber, I will give, in full, a specification of a patent, (copied from the English Government Patent

Records,) granted to Richard Archibald Brooman, Patent Agent, for *improvement in preparing caoutchouc, adapted especially for dental purposes*, (being a communication from abroad, by Corneille Lambert, Charles Cassinir Gobert, of Paris, France,) March 20th, 1861:

"For the purpose of this invention, I treat the red caoutchouc of commerce, and in the following manner:

"First. I soften the red caoutchouc by dissolving it in sulphuret of carbon, ether, chloroform, or other solvent. And according to the degree of solution to be obtained, the caoutchouc must be dissolved in a quantity of the solvent varying from about one quarter of the weight up to an equivalent weight of caoutchouc.

"Second. I introduce into the solution one of the following substances, *sulphate barytes, of manganese, of strontian, of antimony, calcined alumina, calcined or precipitated silex, phosphate of lime, or carbonate of baryta*. These agents are used alone, or mixed with *oxide of zinc*. The object of their introduction is to reduce or tone down the red in the caoutchouc, and to cause it to assume a flesh-color tint; sometimes a little carmine is added. The decoloring agent is introduced in about equal quantities, by weight, to that of the red caoutchouc. The product obtained by the treatment is in the form of a flesh-colored paste, of a consistency suitable for moulding of dental pieces, and other articles to be manufactured. When the paste is required to be more supple and malleable, a small quantity of ordinary caoutchouc in solution is added.

"Third. The dental piece, or other article, having been moulded from the paste, prepared as before described, requires to be solidified. This operation takes place in a closed vessel, where the temperature is raised to from 300 to about 335° F. After an exposure of about half an hour, the caoutchouc will be found hard, and at the expiration of three-quarters of an hour, it will be found to have acquired all the hardness necessary.

"Caoutchouc prepared in the ordinary manner would require to attain an equal degree of hardness, at least one hour and a quarter.

"The flesh color will be improved by exposing the piece, or other article, either directly or in an alcoholic bath, to solar rays for a period varying with the intensity of the light."

Owing to the press of matter, I am unable to give, in the present number, the results of the experiments to ascertain the quantity of solid or earthy matter in the different samples of rubber offered for dental purposes; but I will here remark, in *all* of the samples of English pink rubber, I have found *forty-eight per cent.* of earthy matter—a quantity sufficient to render it so weak as not to be reliable for dental purposes.



## DEFORMITY OF ARTIFICIAL TEETH.

BY C. H. BOOLESTON.

The deformity of artificial teeth may seem to you a queer subject to engage the attention of any one, much less a dentist of seventeen years' experience, but I hope to be able to throw out a few suggestions that will have at least a practical bearing upon the subject, and serve to call the attention of abler pens to a much-needed reform in the manufacture of artificial teeth and their adaptation to the mouth. The great mass of mankind are ever eager for something better than kind Providence favored them with, and attempt to reverse the laws of nature to suit their own fancy, and in this way create all manner of deformities and their usual train of misery. This may be the result of what is called refinement, but more probably from the lack of it, for it is certainly not very much to the credit of those who ought to know better to do that which gives deformity to the grandest work God ever created. We live in a world where everything we behold has the finger of decay upon it; our own bodies, the noblest of all created works, have decay written on every member, and we are often called to battle with disease in all its varied forms, and make repairs to keep our frail bark afloat until the appointed day for its final destruction shall have come. But the manner of making these repairs is a subject which presents many difficulties, and the faithful dentist has his full share to contend with. Now in the departments of repairs, in which the dentist acts a prominent part, is that of supplying the loss of the natural teeth. To this end, it is expected, (as in other matters of his profession,) that he will use his best endeavors to imitate nature, and restore the natural expression of the face, regardless of the notion the patient may have. The dentist should know what class of teeth is best adapted to the person requiring them, yet how few have the manhood to do as their better judgment tells them. Were they to adopt such a course, and then say to the manufacturer, keep your white mechanical teeth and give us teeth that are copies of God's own work, and my word for it the result will be satisfactory. It may be said that copies from one mouth will not answer for another. Very true, there would probably be individual cases where a slight variation would be necessary. But I claim that there is variety enough in copies that can be made from nature to supply its defects. This can be proven by comparison. The worst deformity of most artificial teeth is their *studied regularity* and over-polished surface, which at once stamps them as false. This is done by the manufacturer to suit the eye of the dentist, whose desire for such teeth, (if they are *small*,) is only equaled by his eagerness for customers. It is not an uncommon thing for some dentists to buy a dozen sets of teeth, all of one shade and size, and use them all without regard to age or complexion, and when

he gets them used up, gets more of the same sort. He may wish them to vary a little in length, but wants them *small* and *white*.

Now I say this comes from a false taste, both of dentist and manufacturer. The general public know but little of what they really want or need in the dental line, and if a dentist is honest, and wishes to give his patrons the full benefit of his art, he will find but little trouble in getting the great majority to concede to his views in regard to how the work should be done.

Another great defect in most artificial teeth is the narrowness of the incisors, especially the *lateral*, which, by being too narrow, derange the articulation of the entire set, especially if it is an artificial upper one inserted to match natural under teeth. In most cases the cuspidati of the upper will ride upon the under one, when the proper position for it is between the under cuspidati and the first bicuspid, and unless the dentist takes much pains in grinding the cuspidati with small wheels, (which, I regret to say, few will do,) the articulation will be anything but good. I am satisfied, from experience, that teeth can be so made as to avoid, in a great measure, the difficulties referred to, and give a more natural expression to the face. The gums as well as the teeth add much to the general appearance of false teeth. In most teeth made in sections the gum is very smooth, and on a perfect curve, instead of being irregular as it is in nature. I for one am willing to take nature for my pattern.

Oxford, New York.

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## PROCEEDINGS OF DENTAL SOCIETIES.

BY C. N. PIERCE, D. D. S.

### American Dental Association.

The Association assembled at Grant's Hall, Niagara Falls, on Tuesday, July 26th, 1864, and was called to order, at 11 o'clock, A. M., by the President, Dr. W. H. Allen; Dr. J. Taft officiating as Secretary. The credentials of delegates representing the following Associations were then received:

Society of Dental Surgeons of the City of New York; Massachusetts Association of Dental Surgeons; Pennsylvania Association of Dental Surgeons; Pennsylvania College of Dental Surgery; Brooklyn Dental Association; Indiana State Dental Association; Mississippi Valley Dental Association; Central New York Dental Association; Connecticut Valley Dental Association; Northern Ohio Dental Association; Western New York Dental Association; Hudson Valley Dental Association; Merrimac Valley Dental Association; Odontographic Society of Pennsylvania; Ohio Dental College Association; Iowa State Dental Society; Philadelphia Dental College; Western Dental Society; Chicago Dental

Society; New Haven Dental Society; Pittsburg Dental Association; St. Louis Dental Association; Buffalo Dental Association; Michigan Dental Association; Cincinnati Dental Association; Albany Dental Association.

The number present, including permanent members and delegates, was eighty-eight, (88.)

The following gentlemen were elected to serve the Association for the ensuing year:

*President*—Dr. J. H. McQuillen, of Philadelphia, Penna.

*1st Vice President*—Dr. C. P. Fitch, of New York, N. Y.

*2d Vice President*—Dr. H. Benedict, of Detroit, Michigan.

*Corresponding Secretary*—Dr. G. W. Ellis, of Philadelphia, Penna.

*Recording Secretary*—Dr. J. Taft, of Cincinnati, Ohio.

*Treasurer*—Dr. I. J. Wetherbee, of Boston, Mass.

The retiring President, as well as the President elect, made good and timely remarks; after which, several letters were read from absent members, all indicating an interest in the Association.

Dr. McQuillen, chairman of the Committee on Dentists in the Army, made a report which was adopted, and the committee continued. This subject, as well as those of the following papers, occupied much time; many members participating in the discussions, which were extended and instructive.

Papers upon "Dental Pathology and Surgery," from Drs. Atkinson and Flagg; one upon "The Liability of Adult Teeth to Decay," from Dr. Cheesbrough; one upon "Treatment of Sensitive Dentine," from Dr. Marshall; one upon "Reosteogenesis," from Dr. Pease; one upon "Articulation and Articulators," from Dr. Bonuill; one upon "Materials Suitable for Artificial Base," from Dr. John Allen.

The reports of the committees were made by the following gentlemen: upon Dental Education, Dr. McQuillen; upon Dental Literature, Dr. Fitch; upon Dental Chemistry, Dr. Buckingham; upon Local Societies, Dr. Taft.

The following report, made by the Nominating Committee, was adopted:

*Committee of Arrangements*—Drs. W. W. Allport, E. A. Bogue and J. C. Dean.

*Committee on Publication*—Drs. J. Taft, G. W. Ellis, J. F. Flagg, I. J. Wetherbee and C. W. Spalding.

*Committee on Prize Essays*—Drs. C. N. Peirce, I. Forbes, F. N. Seabury, Charles Sill and A. C. Hawes.

*Committee on Dental Physiology*—Drs. W. W. Allport, C. P. Fitch and C. W. Spalding.

*Committee on Dental Chemistry*—Drs. Geo. Watt, T. L. Buckingham and H. A. Smith.

*Committee on Dental Pathology and Surgery*—Drs. J. F. Flagg, W. H. Atkinson, W. A. Pease, J. Cheesebrough and G. S. Allan.

*Committee on Operative Dentistry*—Drs. J. F. Johnston, W. H. Allen and A. G. Coleman.

*Committee on Mechanical Dentistry*—Drs. John Allen, B. T. Whitney, L. P. Haskell, E. A. Bogue and W. H. Eames.

*Committee on Dental Education*—Drs. James Taylor, L. D. Shepherd and Thomas Wardle.

*Committee on Dental Literature*—Drs. T. P. Abell, W. P. Horton and J. H. McQuillen.

*Committee on Voluntary Essays*—Drs. C. P. Fitch, H. Benedict and S. B. Palmer.

After the transaction of much other important and interesting business, the Association adjourned to meet in Chicago, on Tuesday, July 25, 1865.

#### American Dental Convention.

The Convention assembled on Tuesday, August 2d, 1864, in the Supreme Court Room, Detroit, Michigan, and was organized with the President, Dr. Taft, in the Chair; after which, the gentlemen present, from the following States, came forward and signed the Constitution:

Michigan, 31; New York, 12; Pennsylvania, 9; Illinois, 6; Ohio, 6; Canada, 5; Missouri, 3; Massachusetts, 2; Indiana, 1; Iowa, 1; Kentucky, 1; Tennessee, 1.

The election of officers being in order, the following gentlemen were chosen to serve the Convention for the ensuing year:

*President*—Dr. W. W. Allport, Chicago, Illinois.

*Vice President*—Dr. H. F. Bishop, Worcester, Mass.

*Recording Secretary*—Dr. G. W. Ellis, Philadelphia, Penna.

*Corresponding Secretary*—Dr. W. H. Allen, New York, N. Y.

*Treasurer*—Dr. H. Benedict, Detroit, Michigan.

The President elect, on being conducted to the Chair, made a few pertinent remarks.

The address of the retiring President was replete with interest and instruction.

After the reports of the various committees, the first subject under discussion was "The best means of improving the practice and elevating the profession of dentistry." This called forth an interesting discussion, opened by Dr. Taft, and participated in by Drs. Atkinson, Spalding, Perkins, Magill, Peirce, Bishop, Robinson and McCollum.

Papers were read from Drs. G. T. Barker and Wm. H. Atkinson on Anæsthetics; the discussion upon this was quite extended, calling forth remarks from Drs. Buckingham, Gerry, Spalding, Magill, Corbin, Forbes and Ellis.

Upon motion, the subject of "Extracting teeth; when it should be done and when not; the best instruments for the purpose, and the subsequent treatment when any is required," was taken up, and opened by Dr. Magill; he was followed by Drs. Bishop, Perkins, Robinson, Taft, J. Ward Ellis, Peirce, Overhiser, Forbes, Gerry, Allport, Kulp and Atkinson.

The discussion upon absorption of alveolar process, causes and treatment, filling teeth, the relative value of different materials, and the mode of operating in difficult cases, was quite extended, interesting and instructive, and participated in by many of the members present.

Communications were read from Drs. A. Hill, S. J. Cobb and B. Wood, followed by interesting remarks from many present, upon mechanical dentistry.

Some time was consumed with an instructive clinical demonstration by Dr. Atkinson.

The following gentlemen constitute the Executive Committee for the ensuing year:

Drs. Taft, Peirce, Forbes, Robinson and Atkinson.

The following resolution, offered by Dr. Magill, was adopted:

*Whereas*, In the opinion of this Convention, business will be more promptly accomplished by the preparation of papers upon regular subjects of discussion, than by extemporaneous effort.

*Resolved*, That we request of those who intend to meet with us in the next Annual Convention, to examine carefully the subjects offered, and, to the best of their ability, prepare well-digested articles, confining themselves carefully to the subject under discussion, and to forward such papers to be read in Convention, in case they cannot attend in person.

The following resolutions, offered by Dr. Allport, were adopted:


*Whereas*, In the opinion of the American Dental Convention, no less than two years' pupilage in the office of a competent dentist, and attendance upon two full courses of lectures in a Dental College, will qualify an individual to practice dentistry properly; therefore,

*Resolved*, That practicing dentists be requested not to receive students into their offices for a less time than two years; and, under no circumstances, unless they will agree to attend lectures in and be graduated from a Dental College, before entering upon the practice of the profession.

*Resolved*, That the people should require of all those who hereafter enter upon the practice of the profession, that they shall have received a diploma from a Dental College, as the first requisite for public confidence and patronage.

Upon motion, the Convention adjourned to meet at White Sulphur Springs, Ohio, on Tuesday, August 1st, 1865, at 10 o'clock, A. M.

**Editorial.**

 In laying before our readers a synopsis of the proceedings of the American Dental Association and American Dental Convention, we much regret the necessity which compels us to give so meagre a report, leaving out, as we have done, the discussions which should be read by every practitioner. To those who desire to see a more extended account, we would refer them to the "DENTAL COSMOS," to which we are indebted for our synopsis. In so doing, we cannot refrain from acknowledging our indebtedness, in common with the profession, to the Publisher of that journal for his persistent efforts, regardless of expenditure, in giving to the reading dentists so full a report of the proceedings of these yearly gatherings.

We take pleasure in acknowledging the reception of a beautiful specimen of a carbonized tooth, in which the different tissues are clearly traceable, from Dr. J. D. Wingate, of Bellefonte, Pa. From Dr. J. H. Hatch, of California, a cast of a mouth, with two well-formed bicuspid turned on their axis, and standing side by side across the alveolar ridge. Also from Dr. E. W. Robbins, of New Brunswick, N. J., a well-calciified pulp of a cuspid tooth, some teeth representing various abnormal conditions, and a deciduous molar, prematurely extracted, with the crown of the permanent bicuspid lying firmly within its fangs, a condition which should deter every one from extracting these teeth until the presence of their successors shall indicate the necessity.

We take pleasure in recognizing the interest manifested in the DENTAL TIMES by members of the graduating Class of the Pennsylvania College of Dental Surgery. In the present issue, we publish communications from three of the last year's graduates, which, we think, will well repay a careful perusal.

In conversation with Dr. John Allen and his associate, Dr. Colton, a few days since, we learned that out of the great number of patients to whom they had given the nitrous oxide gas in the last six months, eight hundred and ninety-four (894) had, within five minutes after the operation, written on a roll, prepared for the purpose, their name, residence, and the number of teeth extracted; most of them had also given the sensation experienced, which was "*entirely free from all unpleasant symptoms.*" Query: can any one, familiar with the administration of ether or chloroform, give so good a record?

We have received from Lindsay & Blakiston, publishers, a copy of their Physicians' Visiting List, for 1865. Also, their catalogue of Medical, Dental and Scientific books. These gentlemen pay particular attention to this branch of business, and keep constantly on hand a full assortment of works in every department of *Medicine, Surgery* and the collateral sciences, which they supply to order, by mail or express, at cash prices. C. N. P.

Upon motion, the subject of "Extracting teeth; when it is done and when not; the best instruments for the purpose, and the treatment when any is required," was taken up, and Magill; he was followed by Drs. Bishop, Perkins, Robinson, Ellis, Peirce, Overholser, Forbes, Gerry, Allport, Kulp.

The discussion upon absorption of alveolar process, filling teeth, the relative value of different methods of operating in difficult cases, was quite extremely instructive, and participated in by many of the members.

Communications were read from Drs. A. Hill, followed by interesting remarks from many members of the dentistry.

Some time was consumed with an instruction by Dr. Atkinson.

The following gentlemen constitute the committee for the ensuing year:

Drs. Taft, Peirce, Forbes, Robinson

The following resolution, offered by

Whereas, In the opinion of this Association, it is promptly accomplished by the preparation of a discussion, than by extemporaneous remarks.

Resolved, That we request of the next Annual Convention, to elect a committee to the best of their ability, prepare papers to be read in Convention.

The following resolution,

Whereas, In the opinion of this Association, it is more than two years' pupilage to have an individual to prepare a course of instruction upon two full years' pupilage.

Resolved, That the Association, into their offices, and to the best of their ability, prepare papers to be read in Convention.

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Editorial

NOTICE

J.Y.

DENTISTRY.

OW,

ANICAL DENTISTRY.

Course will commence on the 1st of March.

of October, preliminary Lectures are delivered

orative and Mechanical Dentistry are open from the 1st of October, preliminary Lectures are delivered

ing Room, under the superintendence of the Professor of Physiology, is open during the session.

the Course, (Demonstrators' Ticket included,) \$100

and pa Fee, 5

Upri A. REESE, Janitor. 501 North Seventh St., Philadelphia

Board may be had at from \$3.50 to \$6.00 per week.

# COLLEGE OF DENTAL SURGERY.

Session, 1864-1865.

Pennsylvania College of Dental Surgery, and continue until the first of January, be delivered each day at The Dispensary and The College, where ample time, where ample practical part of the course, who are attending October, be delivered, and Saturday afternoon. be delivered each week, A synopsis of the manner of instruction is found under the head of the

Average time of three hours each day. spent by the student in actual practice. The operating rooms are furnished with twenty chairs, command the best light, and all the appliances necessary for use. To these chairs the students are assigned and the hours are fixed for each member of the class to

that is required to provide his own instruments, (except those of the College,) and to operate with them. He is expected to keep them in good order, and for that purpose is provided with a table in which the instruments can be locked up when not in use. As the operations performed at the College are entirely gratuitous, a superabundance of patients invariably present themselves.

In the mechanical department every process known in the profession, which has any value to the mechanical dentist, is fully taught; and receipts of valuable compounds are freely imparted. All the conveniences are at hand in the Laboratory for the preparation of metals, manufacture of teeth, (single and in blocks,) mounting, etc.; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression to the thorough construction of the denture, and proper adjustment of it in the mouth of the patient.



In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of Dentistry, the celebrated hospitals and clinics of the city constantly enable the student to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Blockley Hospital, in particular, one of the largest eleemosynary establishments in the world, are open to Medical and Dental students, free of charge. The staff of this institution is composed of some of the most eminent physicians and surgeons of Philadelphia.

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## COURSE OF LECTURES.

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### CHEMISTRY AND METALLURGY.

The course of instruction from this chair will commence with the consideration of the imponderable substances.

The laws that govern the imponderable bodies will next claim attention, with some notice of symbols or chemical notations. Individual elements, and the compounds resulting from their combinations, will then be considered. Organic chemistry will receive its full share of attention.

The course will be illustrated by diagrams and such experiments as can be performed before the class.

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### DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.

The lectures in this department will embrace the Physiological Anatomy of the teeth, general and microscopical, in addition to a minute and careful description of the various operations performed by the dental practitioner.

The microscope, models and diagrams, will be employed in illustration.

At the Clinic the incumbent of this chair will also demonstrate before the class the various operations described in his course of lectures.

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### MECHANICAL DENTISTRY.

The instruction from this chair will embrace the entire range of manipulations legitimately connected with the laboratory, arranged in two divisions—Mechanical Dentistry proper, and that to which has been applied the appellation of the Plastic department.

I. *Mechanical dentistry proper* will include everything appertaining to the construction of dental substitutes, passing through the different stages of preparation, from taking the impression, to the completion and proper adjustment of the case in the mouth, conjointly with features, expression of countenance, enunciation, etc. It will likewise embrace the metallurgic treatment of the various metals employed, the preparation of plate and wire, the alloying of gold, together with the *alloys* used, as well as those designated as solders.

II. This division will comprise all that appropriately belongs to the manufacture of porcelain or mineral teeth—single teeth, block-work, continuous gum-work, vulcanite, etc. The materials, their preparation, compounds and uses, will be specially regarded.

All new inventions, modifications, and improvements, in this branch of the art, will in place receive due attention and investigation.

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## PRINCIPLES OF DENTAL SURGERY AND THERAPEUTIC.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist.

They will also include a careful examination of therapeutic agents and their general application. Their indications in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated, and also the general hygienic rules and principles which come within the province of the practitioner.

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## ANATOMY AND PHYSIOLOGY.

The instruction in this department will embrace a plain and comprehensive view of the structure and functions of the Human Economy. The valuable anatomical preparations of the incumbent of this chair, (consisting of Papier Mache manikins, models in wood, drawings, wet and dry preparations,) will enable him to fully illustrate his course. With the same object, vivisections on the lower animals will also be employed.

The special relations of this branch to the wants of the dentist will be kept steadily in view, and such descriptions of the natural history, microscopical structure, connections, &c., of the teeth, as their importance demands, will be given.

The great facilities for the study of practical anatomy, to be found in the city of Philadelphia, obviate the necessity of providing a dissecting-

room in the College. For the usual fee of \$10, the student can have access to one of several well-ordered and well-supplied dissecting-rooms.

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### REGULATIONS.

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The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College; five years' practice, inclusive of the term of pupilage, will also be considered equivalent to the first course of lectures. The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done, at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees; and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

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### TEXT BOOKS AND WORKS OF REFERENCE.

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Wilson's, or Leidy's Sharpey & Quains' Anatomy; Carpenter's Physiology, or Dunglison's Human Physiology; United States Dispensatory; Mitchell's Materia Medica; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; C. J. B. Williams' Principles of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Paget's Surgical Pathology, or other standard works on the subject.

THE  
DENTAL TIMES.

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No. 3.

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STEAM PRESSURE IN VULCANIZERS.

BY A. LAWRENCE, M. D.

In the hope that a few "practical hints" upon the subject of steam, as applied in the vulcanizing process, may be acceptable to the profession, I will endeavor to give them. I may premise, by suggesting that, although the dental profession are not expected to turn engineers, en masse, yet not only they, but all others who attempt to generate steam, at high pressures, should do so with a full knowledge of the agent which they are producing. Presuming dentists to be uninformed upon this subject, does not, necessarily, imply a want of professional education, for until within a few years there has been no necessity for research, or even a thought, in this direction. The introduction of vulcanite, however, has not only revolutionized mechanical dentistry, but compelled us to use steam, whether familiar with it or not; and vulcanizing is now done daily at a required pressure doubly sufficient to propel the largest steamship afloat. It may be inferred, from what has thus far been advanced, that we have to deal with a monster whose persistent efforts for liberty can be held in check only by the strongest prison walls and the utmost vigilance. To the further consideration of the subject, it becomes important to inquire whether the vulcanizers now most in use are sufficiently strong to resist the force applied. From experiments made at the Franklin Institute, it was found that the tensile strength of wrought copper, one inch square, at a temperature of  $302^{\circ}$ , is 80,872 lbs., and at  $392^{\circ}$ , only 27,154 lbs. Now it will be found, by mathematical calculation, that at  $320^{\circ}$ , the usual vulcanizing point, it is about 30,000 lbs. The published tables, however, give 34,000 lbs. as the tensile strength of wrought copper, but it must be borne in mind that the latter figures are based upon experiments at a much lower temperature than that under consideration. Most vulcanizers are now made of sheet copper, one-sixteenth of an inch in thickness, and, agreeable to the foregoing facts, have a tensile strength of 1,875 lbs., and one of four inches in diameter will not sustain a pressure of more than 150 pounds per square inch, or a temperature of  $363^{\circ}$ .

Let us next ascertain what force of steam is exerted upon the boiler, within a short range of temperatures. We find, by the tables of Haswell, King and others, that at  $320 + ^\circ$ , the pressure is 85 lbs.; at  $324 + ^\circ$ , 90 lbs.; at  $328 + ^\circ$ , 95 lbs.; and at  $332^\circ$ , it is 100 lbs. per square inch. These figures I have verified by a steam gauge connected with my own vulcanizer, and which I now use in preference to the thermometer, as I consider it more convenient, safer, and less liable to accidents. Practical engineers concur in the opinion that a force of not over one-half the sustaining capacity of the boiler can be safely applied. Now, then, if the vulcanizers, of the diameter previously given, were made of sheet copper, one-eighth of an inch in thickness, they would be capable of sustaining a force of 298 lbs. per square inch, and at the temperatures attained in practice, might be regarded as comparatively safe. Of course, it must be understood, that the thickness of metal should increase with the diameter of the boiler, when designed for a given pressure.

Having given the statistics, little remains to be said, except, perhaps, to call in question the expediency of jeopardizing our lives every day in the week for the paltry sum necessary to furnish a trifle more of metal to our vulcanizers. The cost of manufacturing, aside from the stock, would not be enhanced. It may be urged that vulcanizer explosions are of very rare occurrence. Admitted, but therein consists the wonder, for it is not surprising that a few are "blown up," but that more or all are not. The vulcanizer is nothing more or less than a small boiler for generating steam, and in its use we should so regard it, for the fact that it is small does not deprive it of liability to the same accidents, or some of them at least, that larger ones are. We recoil, with a certain degree of apprehension, from the presence of the large marine boiler, carrying from twenty to forty pounds of steam, while we sit down before the small vulcanizer with as much nonchalance as to a cup of old Hyson. The difference is only as between the one hundred pound Parrott gun and the pocket pistol. Steam is easily managed so long as it is managed, its control being dependent upon certain well-established principles, a departure from which cannot safely be indulged in, unless, indeed, one wishes to enjoy the extreme felicity of an aerial journey at the expense of all earthly ties. However agreeable it might be to others, to see their own heads kiteing it through the air, I must confess that I have no unconquerable desire to participate in any such amusement. I do not by any means wish to be regarded as an alarmist; but there is, most certainly, a limit to the resisting capacity of the boilers we use, as is the case with those intended for other purposes. Suppose the bulb of the thermometer gets slightly fractured, and, the accident not being discovered, the vulcanizer is put to use, what then? If the damage is slight, the mercury

may still be made to rise in the tube at high temperatures, but will not truly indicate the full heat or force within. Some time ago I had some difficulty in producing a desirable shade in my vulcanite work—it was too dark, as is the case when over-heated—and I came to the conclusion that the gum had deteriorated in quality. Other samples of gum were tried, and at varying lengths of time, yet with the same result. No defect could be discovered in the thermometer by the naked eye, but a microscope revealed a slight crack in the bulb, and the mystery was solved. But what force of steam was produced during these almost despondent trials? Although my vulcanizer would safely bear a pressure of one hundred pounds per square inch, I concluded to use a steam gauge for the future, and now feel a security in its use positively refreshing. The gauge I use is that manufactured by the American Steam Gauge Co., No. 44 Exchange street, Boston.

Considering the further continuation of these remarks undesirable, at this time, I leave the subject to the reflection of any who may think it worth their attention.

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### CAOUTCHOUC.

#### ITS HISTORY, PROPERTIES; ITS COMBINATIONS FORMING HARD RUBBER, AND THE MANNER OF WORKING IT FOR DENTAL PURPOSES.

BY E. WILDMAN, M. D., D. D. S.

[Continued from p. 75, vol. 2.]

In the specification of the patent of H. H. Day, for improvement in preparing and vulcanizing India rubber and gutta percha, dated June, 1857, he asserts, by his process, very thick pieces of rubber may be vulcanized uniformly hard and solid throughout their entire substance. To accomplish this object, he mixes “with the matter, when prepared for being vulcanized, a substance which will prevent the spongy or cellular character, by absorbing the sulphur gases as fast as generated. The material which is proposed to be employed for effecting this object is, by preference, ordinary pipe clay, (alumine,) but other substances, capable of absorbing the gas, may be employed. The gum may be prepared for vulcanizing in the following manner: One pound of purified India rubber, or gutta percha, having been mixed with eight ounces of sulphur, (sublimate,) in the usual manner, eight ounces of alumine are added to the mass, taking care to have it distributed evenly throughout. This mass may now be vulcanized in from four to seven hours at a temperature from 230° to 300° F., in the ordinary manner.”

“Articles of any great thickness, and requiring to be made hard and equally solid throughout, can thus be produced with facility, inasmuch as all the gases evolved by the sulphur will be rapidly absorbed by the

alumine, or other equivalent absorbing agent employed. In this manner, balls four inches in diameter, which do not expand perceptibly when taken out of the mould, may be made, and when cut will be found to be uniformly dense and compact throughout."

In an experiment made with a mixture, compounded as above, a light brown-colored rubber was procured, hard and compact, but not so tough as when merely sulphur and caoutchouc were used.

I have given a few of the great number of mixtures patented for making hard rubber to throw some light upon their general character, although some of the most objectionable have not been noticed, yet they do not give us much information as to what are the compounds vended for dental purposes. To obtain a knowledge of the value of these compounds, I have performed numerous experiments, analytical and synthetical, some of which I will relate for the benefit of the profession, trusting it will stimulate others to enter the field of research.

In the experiments to ascertain the quantity of fixed matter, the first was made by my attention being directed to a dark pink rubber by its great specific gravity, 2.188. Whose make it was I do not know. One hundred grains of this rubber was brought to a white heat to expel all the volatile matter; it left a white ash weighing sixty grains. Taking into consideration the sulphur and vermilion which were volatilized, it would leave but a small percentage of caoutchouc in the composition.

*Second.* Two specimens of English light pink rubber, obtained from different sources, the maker's name not known, each produced forty-eight per cent. of white earthy matter.

*Third.* A specimen of English pink rubber, made by Ash & Sons, marked No. 1; this, as above, gave forty-eight per cent. of a yellowish-white earthy matter. The ash retained the original shape of the rubber.

*Fourth.* A specimen of English deep red rubber produced six per cent. of a dark ash or cinder.

*Fifth.* A specimen of Diffenbaugh's red rubber gave sixteen per cent. of dark compact cinder.

*Sixth.* A specimen of the American Hard Rubber Co.'s rubber, sp. gr., 1.572, yielded five per cent. of dark compact cinder.

*Seventh.* A specimen of dark red rubber offered in the market for dental uses, made by whom I do not know, as the modesty of the maker would not permit him to give to the public his name. This yielded four per cent. of dark ashes. Although this rubber had less fixed matter than either of the preceding, it was very inferior in quality, and contained in its composition a large proportion of asphaltum, and was worthless for dental purposes.

To ascertain if there was any free mercury in the A. H. R. Co.'s rubber, or any evolved by the decomposition of the sulphuret during vulca-

nization, in the bulb of a tube, about a foot long, was placed some rubber; the tube was then bent in the form of a retort, and the open end drawn out upwards to a capillary point. The end of the tube containing the rubber was placed in a bath of paraffin and vulcanized for one hour and a quarter at 320° F.; the opposite end was kept cool during the operation to condense the mercury should any come over. The result of this, and several similar experiments, as no trace of mercury could be detected, free sulphur was sublimed and condensed in a small quantity.

Caoutchouc may be mixed with sulphur and the coloring matter, by being passed between steam heated rollers, or the caoutchouc may be first reduced to a pulpy state by some one of its solvents, and the sulphur and other substances then mixed with it; in either case the sulphur and coloring matter should be ground very fine, and the whole thoroughly incorporated together to ensure a satisfactory result.

For experimental purposes the latter method can be readily practiced by any one. Of the solvents, coal naptha, or benzine, readily reduces the caoutchouc to the proper consistency, but after being mixed, and the solvent is evaporated, the rubber is dry and does not pack well. Oil of turpentine leaves the rubber somewhat adhesive and in a good condition to pack. Therefore I have found it a better plan to soften the caoutchouc in oil of turpentine, or in equal parts of naptha, or benzine, and oil of turpentine. When the coloring matter is ground in oil, the caoutchouc may be softened in naptha, or benzine, and it will pack well, but I am inclined to believe the oil injures the hardness and polish of the rubber. After the materials are well mixed, they may be spread on a glass plate with a spatula, and allowed to remain until the solvent is evaporated. In these experiments the best Para rubber was used, the time and temperature in vulcanizing the same as for the A. H. R. Co.'s rubber.

*A.*—Caoutchouc,.....48 grs.

Sulphur,.....24

This gave a dark brown rubber, strong and tough, and received a good polish.

*B.*—The same proportions as *A.* In this case the caoutchouc was a pure article, nearly colorless and translucent. Result—color and properties the same, showing that the natural color of hard rubber is a dark brown.

*C.*—Caoutchouc,.....48

Sulphur,.....24

Red Oxide of Iron, (Rouge,).. 36

This is one of the many mixtures, and the best, to ascertain the coloring effect of iron. Result—color, black red, and after exposure to the



rays of the sun in alcohol produced a dark red, much darker than the Co.'s rubber. The texture was good.

Numerous experiments were tried to ascertain the quantity of vermilion necessary to overcome the natural brown and produce a red color; the following mixture may be set down as the lowest:

<i>D.</i> —Caoutchouc, .....	48
Sulphur, .....	24
Vermillion, .....	36

This produced a good strong compact rubber, closely resembling the Co.'s. Some mixtures made according to this formula were darker, others lighter, owing to the different varieties of vermilion used. To bring it to a bright red it would require about equal proportions of caoutchouc and vermilion.

<i>E.</i> —Caoutchouc, .....	48
Sulphur, .....	24
White Oxide of Zinc, .....	30
Vermillion, .....	10

This, after being placed in alcohol and exposed to the rays of the sun, produced a pink similar to the English; texture good, but not so strong as *D*.

To test the coloring power of white oxide of zinc, the following results are given:

	Gray, <i>F.</i>	Lighter, <i>G.</i>	Light Drab, <i>H.</i>
Caoutchouc, ...	48	48	48
Sulphur, ...	24	24	24
White Ox. of Zinc, ...	18	24	36

The effect of the oxide of zinc was not developed until after the action of the sun in alcohol.

The following formula will produce a jet black. Ivory black is preferable to lamp black for giving a good color.

<i>I.</i> —Caoutchouc, .....	48
Sulphur, .....	24
Ivory Black, .....	24

To obtain a yellow, chrome yellow was tested; it gave a slate color, the chromate of lead being decomposed by the sulphur. King's yellow gave satisfactory results; this being sulphuret of arsenic, it is inadmissible for dental purposes.

<i>J.</i> —Caoutchouc, .....	48
Sulphur, .....	24
King's Yellow, .....	36

This, like all the light colors, requires to be placed in alcohol, and acted upon by the rays of the sun for its development; it then gives a bright yellow.

A very pretty mottled substance for handles, &c., may be made by packing together small pieces of these different colored mixtures, and after being vulcanized, treating as above described to bring out the colors.

To color rubber, three points are essential. First, the color must remain unchanged at the heat required for vulcanization. Second, it must withstand the action of sulphur at this temperature; and third, sufficient quantity must be added to overpower the natural brown of vulcanized rubber before the effect is produced; hence all highly colored rubber, or where the brown is widely departed from, must, by its being loaded with so much color or foreign matter, be weakened; in proof of this, I have found no other mixture possessing strength and toughness equal to that made of simply caoutchouc and sulphur, (*A.*)

The following table gives, very nearly the percentage of caoutchouc contained in the preceding formula.

	Caoutchouc.	Sulphur	Vermillion.	Parts in.
<i>A.</i> —Brown,.....	66½	33½		100
<i>D.</i> —Red,.....	44	22	33	99
			Ox. Zinc.	
<i>E.</i> —Pink,.....	42½	21½	9	27.....100
<i>F.</i> —Gray,.....	53½	26½	20	.....100
<i>G.</i> —Lighter Gray,.....	50	25	25	.....100
<i>H.</i> —Drab,.....	44	22	33	.....99
			Ivory Black.	
<i>I.</i> —Black,.....	50	25	25	.....100
			Orpiment.	
<i>J.</i> —Yellow,.....	44	22	33	.....99
			White Earthy Matter.	
English Pink,.....	24	12	18	48.....102

The calculation for the component parts of the English pink rubber is based upon the method patented for making it given on page 75, the quantity of fixed matter it is found to contain, and taking the formula *D*, as the composition of red rubber. It will be found, upon examination of this data, that if there is any error in the quantity of caoutchouc given to the English pink, it is in its favor. A glance at the above table will at once show its great inferiority to either the brown or red for dental purposes.

Caoutchouc being the cement which binds the whole together, if in this or in other composition which contain it in a small proportion, any substance prejudicial to the system should enter into its composition, (and in the patent above referred to such substances are recommended,) its weakness of texture would render it liable to produce injurious effects by its susceptibility to abrasion in the mouth.

## MAKING AND POINTING INSTRUMENTS.

BY GEO. B. SNOW, D. D. S.

In the operative department of dentistry, much depends upon the possession of instruments of the proper size, shape, and temper, and, if not actually indispensable, it is still of the greatest importance for the dentist to be thoroughly acquainted with the leading steps in their manufacture, and to be able to repair and alter them to suit his views. The smaller instruments used in dentistry are very liable to be broken, and that, too, at times when the accident may be a source of great inconvenience, if not annoyance. I think the chances of such accidents are much diminished if the owner tempers them himself, and is therefore better liable to judge of the amount of strain they will bear. My object in this essay is not to recount the steps in the manufacture of all kinds of instruments, but merely those with which every dentist ought to be acquainted.

The first requisite in the manufacture of instruments, where great hardness and elasticity are expected, is that they be made of the best of steel. Among the varieties of this alloy, if I may so term it, that which is known as cast-steel stands pre-eminent for these qualities. It is also more homogeneous in its texture than any other variety. It is made by melting the crude, or blister steel, casting it into ingots, and afterwards hammering and rolling these ingots into bars. Good steel should present a fine grain, free from flaws, when broken. That which is in bars of a flat or square section is better than round, from the more thorough condensation which can be given to it. It is important that the square section be preserved in the working of steel, or any metal, under the hammer. While it is kept in this form, the blows of the hammer tend to condense it, but when it is permitted to assume any other shape, as rhomboidal, for instance, the tendency of a blow upon it will be to slide the particles upon one another, and will soon break up the texture, and fill the bar with flaws. In forging steel, great attention should be paid to the heat, which should not be permitted to go beyond a cherry red. If it is carried much beyond this, the steel will be overheated, or, as it is commonly called, burnt. The precise nature of this change is not very plain, but the change itself is sufficiently obvious. If a bar of steel in this state is compared with one that has not been overheated, it will be found to have a larger, coarser grain than the other, and to have lost its tenacity in a great degree, so much so that it is no longer capable of keeping a good edge. Steel in this state may be restored in a measure by repeatedly heating and hammering until nearly cold.

As steel comes from under the hammer it is hard enough to be very destructive to files, from the condensation which it has undergone. It is therefore best to anneal it. This is generally done by bringing it

to a red heat, and then placing it in a bed of some non-conducting material, such as pulverized charcoal, lime, or plaster. It is not important what this material is, as its only object is to retain the heat as long as possible.

There is another way, more particularly applicable to pieces of considerable size, which is known as "cold-water annealing." The article is brought to a red heat, then placed in some dark place, and suffered to cool gradually until it ceases to be luminous; it is then plunged into cold water. It will be seen at once that this way is much quicker than the former one, but the result may seem, at first, rather paradoxical; but if we consider the process of tempering, we shall see that the explanation is perfectly simple. In tempering hardened steel, we gradually raise the heat, and cause it to pass through various gradations of color, until we come to the one denoting the degree of softness we require. As the temperature of the steel is raised, the softer does it become, but on being again plunged into water, the hardness is not restored, unless we have raised it to a red heat. If, therefore, we plunge it into water, at a temperature just below that which will just suffice to harden it, we may expect to find it as soft as it can be made. Again, if the extremity of a bar of steel is brought to a red heat, and plunged into water, the line between the hard and soft portions of the bar will be found very narrow. I might almost say the change was instantaneous. Very small articles of steel are annealed with difficulty in the common way, as the air abstracts the heat from them so quickly as to harden them. It is best to envelope them in some non-conducting material, and bring them to a red heat, and then suffer them to cool gradually. The next step in the manufacture of an instrument will be shaping it with a file; but, after the process it has already been through, it will be found covered with a hard scale which is very destructive to files. If there are many pieces to be filed, it will be advisable to place them in a "pickle" of dilute acid, to remove this scale. They may then be filed with more ease. A coarse file may be used until they are nearly of the desired shape, when it should be exchanged for a finer one. Means should then be taken to get rid of the file marks altogether, and to leave the instrument perfectly smooth and bright, as it is much easier to discern the proper color in hardening and tempering.

If excavators are to be made, they next require bending and bringing to an edge. If the bend is to be the flat way of the steel, it is best to flatten and then bend it, and vice versa. They should be then trimmed up with a file, and brought into the shape desired.

Pluggers have almost always serrated points. In the old method of using gold foil, where no dependence was placed on its adhesive property, these serrations were useful, as they rendered the instrument less liable

to slip, and gave it a better hold on the foil when it was to be carried to the bottom of the cavity. But in the method of using foil which has come into use within a few years past, these serrations are not only useful, but indispensable. It may be well, before we describe the different ways of serrating pluggers, to consider, for a moment, what are the requisites of a good instrument. It is of the greatest importance in using foil, or crystal gold, where dependence is placed in part, or entirely, on its adhesive properties, that the surface of the gold, as condensed, should be kept perfectly rough, and, on this account, the end of the instrument employed should contain a number of points, approaching, as near as may be, to mathematical exactness. It is also necessary that they be very acute. The importance of this may be shown in the diminished usefulness of an instrument that is too soft, where the points have become slightly dull.

Where the gold is very adhesive, as in using annealed gold, for instance, this is an important requisite to a good instrument. But where the foil is used without any preparation, it is also of importance, although perhaps not equally so, that the instrument be so formed as to condense the gold quickly and without cutting it to pieces. This point seems to be lost sight of sometimes, as we often see points formed by means of two series of grooves, one on each side of the instrument, and running obliquely towards each other, thus forming not only a row of points, but also an edge extending from one point to another. In such an instrument, the tendency will be, instead of gathering the gold together and condensing it, to force it apart and out it to pieces, and though such results may not be so apparent, they are still produced to an extent varying with the adhesiveness of the gold, and the operator who succeeds well with such an instrument may thank the excellence of his material more than that of the instrument. The form of serration with which I have been most successful, in my rather limited experience, is that which is formed by bringing the instrument to an edge, then passing a file directly across the edge to form it into points.

I use a "flat oval" separating file, with a safe side, almost exclusively in serrating instruments. As it gets dull, I grind off the edge on the safe side at a slight bevel. It will then form a notch which runs as near an angle as possible. But the great advantage of using this kind of file is the facility with which the serrations can be regulated, if necessary. I often "lay them out," as it might be termed, by rubbing the instrument across a rather coarse file, but I prefer to finish them with the file above described.

It is generally the best way to make the serrations with the instrument straight, and bend it as desired afterwards. They are then ready to be

tempered. It is advisable, as a preparatory step, to cover the instrument, as far as it is to be heated, with some flux, to protect it from oxidation. Soap answers the purpose perfectly, and is always at hand. Prussiate of potash is highly recommended for this purpose, and it is said that a lower heat is required to harden the steel when this is used. The instrument, after being so coated, is to be brought to a red heat, and then plunged into water. If there are many to be hardened, a bath of red hot lead is an excellent and quick way of doing it. Where the blow-pipe is used, the shank of the instrument should first be heated, then by carrying the instrument obliquely with the flame, the point may also be heated. Care should be taken not to overheat the steel. After being hardened, the instrument should be brightened with some fine powdered spar, flour of emery or emery paper, and is then ready for tempering.

It often requires some acquaintance with the qualities of the steel of which the instruments are made, in order to secure the exact temper desired. Steel varies in hardness according to the degree of carbonization it has undergone. As a general rule, our instruments require to be brought to a dark straw color at the cutting edges, the rest of the hardened part of the instrument should be brought to a blue, or spring, temper. It is generally advisable to hold a piece of cold iron against the part of the instrument that is to be the hardest, as it will partially conduct away the heat, and suffer the blue color to come nearer the point than it otherwise would. Small excavators often require a spring temper for some distance up the shank, to prevent their bending. The best way I have found to temper them is first to temper the cutting part. Then placing a drop of water on a piece of cold iron, and holding the cutting part in it, the remainder of the instrument may be drawn to the temper required.

BUFFALO, N. Y., December, 1864.

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## DUTIES AND RESPONSIBILITIES OF THE DENTAL PROFESSION.

BY D. K. BOUTELLE.

Read before the Merrimac Valley Dental Association November 3d, 1864.

Were we to assert it to be the duty of every man who offers himself to the public as a dentist, to be properly qualified for that position, and then to perform all operations that come under his treatment to the best of his ability, and always to recommend just such as he sincerely thinks for the best interest of his patients, would be, simply, to affirm that every dentist ought to be an honest man. And that he is responsible for the effect or non-effect of his operations, will not, perhaps, be questioned by any.

But that the dental profession is responsible for the condition of the teeth of the whole community, whether the individuals composing

that community all come under our special manipulations or not, and that it is the duty of our profession, eventually, to do away, almost if not entirely, the necessity of the dentist at all, may not be so apparent to every mind. To these points I propose to call the attention of this meeting for a few moments.

Is any one startled at the idea that we, as a profession, are responsible for the condition of the teeth of that part of the community who never call on us for our services or advice, and who seem to have very little, if any appreciation of the value of these organs, and quite as little idea of the means necessary for their preservation, let me ask him, who is responsible for the education, or non-education, of the rising generation? Is it that generation itself, or the one preceding it, which is already able, in some degree, to appreciate the benefits of education? Who is responsible for the health of a city or community? Is it the mass of the people, those most effected by disease when it sweeps through their ranks? Or is it not rather the Board of Health, the government, and the more educated class, who are better able to understand the causes that produce, and the means that prevent disease.

It is not enough that the physician is able to cure the specific cases of a contagious or epidemic disease that come under his treatment. But if he be a true man, a true physician, is truly imbued with the divine spirit of the healing art, he bends his mind to discover the specific causes, and then not only the means of cure but also the means of prevention. And not only will he do this, but, when he thinks he has found it, he does not put his light under a bushel, nor lock it up in his medicine case, nor yet alone in his own brain; but he publishes it to the world. He lets his light shine. He not only *lets* it shine but he *makes* it shine. He enforces it upon the public mind by precept upon precept until he gains attention, and thereby educates the people on that special subject.

What a glorious example, in point, has the world in the case of vaccination, as a prevention of small-pox; and yet, were that left to the masses who are to be benefitted by it, to execute, without the continuous efforts of physicians, and governments and scientific men, the name of Jenner would be forgotten and the art of vaccination become unknown, except to a few, and they would keep it to themselves. Even now, when its benefit is so fully shown by the experience of the world, whenever that terrible scourge, small-pox, visits any locality, how many are surprised by its attack, not having availed themselves of the benefit of the great preventive.

Now who is responsible for all this neglect? We say the physician, scientific men, the educated class, those who should, and must be the educators. He who, by thus educating the public mind and thereby preventing whole communities from falling victims to some fell disease,

although the world at large may not even know what he has done for it, has really done a greater service than he who has cured a hundred specific cases and thereby gained for himself great renown.

Again, the philanthropist in his labors of love and benevolence is not content merely to pluck here and there an individual from the fires of intemperance, the dens of vice and pollution, or the chains of human bondage, as brands from the burning, nor yet, even to save whole classes of erring and wrong ones

"Who've slipped in life's too slippery paths,"

or been crushed beneath the cruel heel of oppression, and place them back again in society, though scathed and scarred by the burning hells through which they have passed; but he studies to devise some means to save whole generations from the temptations, the falls and the evils which others have experienced, and thereby prevent the very necessity of reform and of reformers. When he thinks he has discovered the means which, if used, may accomplish the end he has at heart, he does not hoard them, merely to speculate upon in his own mind, or with which to regale a friend and help him to kill an otherwise idle hour, but he goes to work. He sends out a Gough and a Hawkins to preach temperance; a Coles to preach and write and publish the abominations of tobacco; a Thompson, a Phillips and a Douglass, to thunder in the ears of community the deep damnation of human slavery. And so of all the evils he attempts to reform. He enforces his thoughts with all the powers of reason, eloquence and wit which he can command. He publishes tracts, books, periodicals and newspaper articles, and sends them forth broadcast among the people, and by every means in his power he seeks to educate the public mind and the public heart, upon the subject he has in hand.

Think how the Pilgrim Fathers of our own New England steadily, earnestly and persistently infused their thoughts into all around them, and thus moulded the character of our most cherished institutions. See how the institutions of New England are moulding the character and destiny of this vast republic. And ye who can discern the signs of the times, behold how this republic is yet to shape the character and destiny of the world and give it the glorious light of freedom. The world is ready to receive light and knowledge and freedom whenever these benefits are presented in sufficiently bright colors to attract its attention, but it never goes after them. The electricity of the universe is not perceived by the multitude except when it flashes on us in the form of lightning accompanied by the reverberating thunder. The besotted inebriate is content to grovel in his swinish condition, with no attempt to free himself from the horrible pit and the miry clay of intemperance, till some friendly hand is stretched out to him and some kind voice whispers in his ear that



the fire of manhood is not yet wholly extinguished. The bond slave mulishly toils for his oppressor without a thought that he can be anything better. He does not seek the knowledge which might make him free. But tell him he is a man and you cannot hold him longer. You must take your heel off his neck. All the light, intelligence and knowledge in the world are preserved, and increased and diffused but by the earnest, persistent and energetic efforts of those who possess them, to teach them to others. And dentistry, the art of preserving the human teeth for all the purposes for which they were designed, is no exception to the general rule.

We are aware that there is a class of persons outside the profession who look upon dentists as a sort of necessary evil that must be endured, and dentistry as a kind of professional torture to be dreaded more than toothache. They think dentists a sly curious sort of genius who have some wonderful secret of their own which they would not divulge for the world, for fear people's teeth would decay no longer and their craft would be spoiled. They suppose the great object of the profession to be, to produce all the dental business possible. Consequently, when driven by toothache or deformity, dreaded more, they apply to a dentist; they sit down in his chair with fear and trembling, not so much for the operation they wish him to perform as for fear he will perform some operation on their teeth that shall destroy them, that he may have the opportunity to make them a new set some other day. They feel no confidence in him. They only employ him because compelled by circumstances, and he is the only man who has the instruments and knows the witchery of their use. Every dentist knows how disagreeable it is to operate for such patients. He knows they distrust him, and knows, too, that they distrust him because ignorant of his true interest as well as their own. Why is it that so many persons get such absurd ideas of dentists and dentistry? Simply because on no other subject of half so much public worth is there so much public ignorance as on this: and we regret to be compelled to say it is not confined to the low, or those supposed to be ignorant people, but we find it in all ranks of society, even among scientific men. Yes, even among the medical profession there is only now and then a man who appreciates the subject sufficiently to realize that it is a matter of importance enough to attract the attention of any man of sufficient capacity to fit him for a *doctor*.

Now who is at fault for all this ignorance and want of appreciation of this branch of surgery? We say the dentist. We would not be understood to say, that here, in the Valley of Merrimac, we find an ignorant community. Far from it. Scotland's poet said that "a ploughman is not to be deemed an ignorant man because he knows not how to read,

if he knows how to plough." And so we would say that people are not to be considered ignorant because they are not versed in every profession, if they are well informed in their own. Yet we cannot help thinking it very desirable, as well as useful, that the ploughman should possess some intelligent ideas of a great many other things besides ploughing. And one of them should be the nature of his own teeth, their use and abuse. So that when we speak of the want of knowledge on this subject we do not mean to say, or imply, that we practice among an ignorant people, but simply that there is a great want of information relative to this branch of science. And why is this so? Why are there so many who understand so little of their true interest, relative to dentistry and dentists? Simply because the means of knowledge on this subject have never been presented to them. How can they learn without teachers, and who shall teach them if dentists will not?

And this brings us back to our starting point, that the dental profession is responsible for the condition of the teeth of the whole community, and that it is our duty to educate the public in this branch of knowledge.

And now, my brothers, how shall we meet this responsibility? Shall we go on content merely to patch up the defective teeth which are presented to us for treatment, and supply artificial substitutes in place of those which are entirely gone? Shall we be content with patch-work and artificial appliances, without making an effort to regenerate society on this subject, with the hope that the world may one day present a better dental aspect, with less need of the services of the dentist than at present? Every dentist well knows that a large proportion of the cases presented to him of defective and ruined teeth are the result of the patient's own carelessness and want of proper attention to those organs. This neglect and mismanagement is chiefly occasioned by the absence of the requisite information. It is true there is a vast amount of matter printed on the subject of dentistry, but most of it is adapted to the reading of dentists rather than the common reader, and, besides, is only published in books and journals which, from their expense, never find their way, to any considerable extent, into the hands of the public, and, if they should, they would be little better than nothing, being too voluminous, too much lumbered with useless speculations, too much chaff for the wheat. The mass of the people will never have patience to sift it out. They need something by which they can get at the true grain at once, some concise and definite instructions. We do not propose to make dentists of every one, because we would have them understand something of dentistry, any more than we would have every body preachers, because all should know something of religion and theology; but we

would simply give all such general information on this subject as shall be of practical use in directing them as to what they shall do, and what avoid for the preservation of their teeth. How much more agreeable it always is for the dentist to operate for patients who have some intelligent idea of what should be expected of him and his operations than it is for those who have not; and how perplexing it often is to work for the latter class. They simply understand that a tooth is a tooth, and a dentist is a fool if he cannot preserve one as well as another. They know toothache is toothache, and they do not think much of a dentist who cannot apply some medicine that will cure it, no matter from what cause, or what is the condition of the painful organ. They are aware that their teeth are decaying, but say they will "wait awhile and then have it all done up at once." They do not understand that a tooth filled at the proper time is any better for them than if delayed until but a fragment of it remains. When they have been to the dentist, and had their teeth filled, and afterwards neglected them entirely, they cannot understand why they are not as well preserved as those of some other persons whom they know, and who are particular to keep the teeth perfectly clean, and the fillings bright and pure.

One great object which it seems to us merits the attention of the dental profession, is to educate the public mind in dental matters. We do not propose, gentlemen, at the present time, to offer any definite plan for the accomplishment of this object. Our purpose has been simply to call attention to it, hoping that you will give it such thought and action as you may think the importance of the subject demands, rather than that of the feeble and bungling manner in which we have presented it may indicate.

Dr. Allport, of Chicago, with the assistance of some other dentists at the West, contributors to his journal, is doing something in this direction, by publishing and distributing a little journal on popular dentistry, called "The Peoples' Dental Journal." To us this seems at present one of the best and most efficient means within our reach. We need have no fears that any amount of dental information possessed by the people will lessen the practice of any well qualified and efficient dentist while the necessity for his services exists; but the opposite is true. The less intelligence there is, the less attention is given to the teeth, and the less credit the dentist receives for what he does. It is for our interest, as well as our patients, that all the information possible be diffused among the people with whom we practice.

MAYCHESTER, N. H., November 3, 1874.

## IMPORTANCE OF THE TEETH.

BY J. H. ALLEN.

In reviewing the importance of those organs from which the science of dentistry has originated, we cannot stop short of that wide range which embraces the whole structure of man.

By the influence of those substances which the teeth are intended to modify and render fit for nutrition, we have consequences induced of a serious character in proportion to the neglect of mastication, the nature of the substance introduced into the stomach, and the constitutional peculiarities of the individual. Many articles of food are of such a nature as to incite, when introduced into the stomach in an unprepared state, the severest irritation; it is therefore necessary for the teeth to remain in their normal condition. From infancy, nature directs attention to their importance by the prominent symptoms which mark their development, and accompany the process of dentition through more advanced stages. An obvious correspondence exists between the appearance of the teeth and the development of the digestive powers, which is sustained by the immediate sympathy and dependence of the latter upon them. As these organs refer to a more substantial aliment than the stomach of the infant is capable of digesting, it is reasonable to infer that their successive appearance corresponds, at every period, with the condition of the stomach, to which they bear such an intimate relation; any interruption, therefore, of their integrity must implicate the stomach, and involve consequences proportionate in some degree to the extent of their morbid condition, and the length of time such condition has existed. These organs are seldom referred to as the original agents in the production of morbid affections, yet it is but a rational inference, sustained by the laws of cause and effect, to refer to them and improper mastication many of the complicated evils which afflict mankind.

Dyspepsia, often induced by the habit of hurried mastication, affords sufficient evidence of the dependence of the stomach upon the teeth, and the necessity of their proper use. The hasty and imperfect mastication of a single meal is often repelled by the stomach, and each error proclaimed by symptoms most serious—errors which frequently lay the foundation of diseases which medical skill may fail to eradicate. Thus we have an instance of their importance, in the consequences which attend their imperfect employment, either through neglect, diseased condition, or total absence. Some eminent men have attributed such importance to the stomach, as to maintain its isolated agency in the origin of a majority of the diseases by which man is afflicted. Now, if this organ possesses an influence so direct, how important must be the nature of the substances introduced into it, also the condition of the teeth by which

such substances are rendered either pernicious or useful, and which are to become, by their proper or improper preparation for digestion, the agents of health or disease. Persons who have lost their teeth masticate imperfectly, causing slow digestion, the gastric juice acting with difficulty upon food not finely comminuted.

The science of dental surgery claims an importance far beyond that associated with the personal convenience or appearance of the individual, in which limited view it is often regarded by the transient suffering or partially deformed. In its powers of reparation, it is of vast importance to the health, consequently the happiness of man, and it claims that power which rejuvenates the countenance, and secures to the individual immunity from many physical maladies.

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### QUACK DENTISTS IN THE WEST.

BY H. SCOTT, M. D.

When we speak of the "West," from our sanctum in the beautiful city of Lancaster, our thoughts are projected over the wide prairies, rivers and cities from five hundred to two or three thousand miles towards sundown. "West," then, is a relative term, and we use it because, of course, the numerous readers of the TIMES, along the seaboard and through the trans-Alleghany States, cannot separate, in their minds, Ohio, Indiana, &c., from the "West." Nevertheless, we are in the habit of thinking the State of Ohio to be an old State, a very great and wealthy State, and so it is. It has also many beautiful towns, and cities, and institutions, comparable with any on the continent. But to our subject.

I cannot think that a faithful portraiture of "*quack dentists in the West*" will be productive of agreeable feelings in educated men of our profession, or profitable to any body; yet the picture may, by contrast with the present status of dental science, show "*from whence we have been digged*," and reveal the advances that have been made in surgical and mechanical dentistry within the last quarter of a century.

I have not the means of knowing whether the older States, lying east of the mountains, have been infested with that class of peddling scoundrels which have overrun the West within my time; if they have, I can only say "*Good Lord, have mercy on*" their patients. But I must condense, or I shall exceed the limits I intended. I will select a few examples from a few scores of quack dentists whom I have known.

When I settled in Lancaster, twenty-three years ago, a *dentist* had just left. He had been in the place a few months, and, being a genius, had done a large amount of filling. Out of some two hundred of his

fillings, which I subsequently removed, I did not find over a dozen (and they were small ones) that were not two-thirds or three-fourths tin foil, the surface only being gold. His fillings were well enough put in to stay there, but the cavities were not prepared. He received the price of gold fillings for them all.

A preacher, who has been dismissed from his circuit, set up dentistry in this county. He carried his kit in a tin box, and rode in a sulky. He did not leave a house in Fairfield county unvisited, and picked up a good deal of money by his impertinent diligence. His outfit consisted of an old-fashioned turnkey, about three pairs of iron forceps, some files and steel excavators, a vial of crude mercury, a pill-box filled with silver dust, some tin foil, and a few pivot teeth. It is sixteen years since, and his wake is clearly visible yet, from the wholesale destruction of human teeth. He finally whipped his wife and fled.

An "accomplished" old gentlemen went from chair-making to the counter, and afterwards, when adversity had overtaken him, proclaimed himself knight of the forceps, at about the age of sixty. He plugged eight teeth one morning before breakfast, and, as he told me, got eight dollars for it. The same teeth were re-filled by myself one year later. This old man deserved no reproach for wrong intentions, he had simply undertaken to do that which his age and qualifications made it impossible for him to do; that was all, and there are many to be found like him. But he is gone to his rest; peace to his ashes. As a citizen, he left a good name.

An insignificant boor, who had patent rights to cure cancer, scrofula, syphilis, &c., carried with him also an equipment something like him of the sulky, and runs a career somewhat like him, except that he is still tolerated in the community. This fellow actually got permission, by calling at residences in the country, to fill some molars that I had long before refused to fill, and which the fears of the patients had not allowed me to extract. Twenty-four hours after his visits, in some cases, brought the suffering victims to my office, when, after removing the teeth, I found the tin foil, or amalgam, impinging upon the exposed pulps. The lesson, though expensive, was salutary to the girls, in pushing them to get rid of some worthless teeth that should long before have been extracted. There is some good evoked from almost everything, whether intended right or wrong, but this cannot be allowed as an argument in favor of quackery in anything. This fellow is one of a set of unscrupulous scamps who stop at no means to get money, and can be found everywhere. He is, at this writing, "under my nose," and, by his impudence, finds daily victims.

Finally, a man of our city, who was a good mechanic, and quite capable, in that line of business, of acquiring a liberal support, suddenly conceived

the idea that dentistry was a paying business, and at it he went, after a pupilage of at least six full weeks with a preceptor of the class I have been describing. After a trial of a few months, in the very place where he had for some years been making bureaus and bedsteads, and not finding his office crowded with patients to the extent of his imaginings, he actually procured, to be published in the two county papers of the place, the following unique advertisement :

## DENTISTRY.

"The undersigned, surgeon dentist of Lancaster, being conscious that the prices hitherto charged by dentists for operations upon the teeth are exorbitant and unjust, will, in the future, be governed by the following bill of fees :

For setting teeth on gold plate, - - - - -	\$1 25 each.
" " silver plate, - - - - -	75 "
" " pivot teeth, - - - - -	50 "
For cleaning teeth, - - - - -	50 "
For filling with gold, - - - - -	50 "
" " tin, - - - - -	25 "
" " amalgam, - - - - -	20 "
For extracting teeth, - - - - -	10 "
	W. ———."

Although there are many persons everywhere who are easily caught with low prices, yet this effort of the *doctor* seems to have been laid on a little too thick; for in about one year thereafter, he was stitching shirt bosoms on a machine for bread, and is now a lunatic.

And now, dear TIMES, I have given you a sketch, very briefly, of what is to be found, more or less, all over the land. I could fill your capacity several times with amusing and ridiculous stories of the doings of these fellows, but I must not trespass upon your valuable space.

The lessons taught by this state of things are, the ignorance of the people in regard to the nature and importance of dental science and practice, and the necessity for the general education of the masses upon a subject second in importance only to the general health. We must have a dental literature for the million. The public mind must be educated up to the ability of self-protection, as in other departments of the affairs of life, before the world can get rid of these vampires and plunderers; in no other way can they be driven from the field. Such men who have no higher motives than to get money, by whatever method, must either be frowned out of community, or compelled to qualify themselves for so responsible a duty as that of taking charge of the health and repair of the teeth, upon which so many of the comforts and enjoyments of life depend. Every other useful science, that concerns the welfare of man, has its popular literature and its educated professors, and

dental science is rapidly coming up to full communion. It has its colleges, its text books, its periodicals circulated among the profession, and it has a host of talented men leading the van. Its practitioners are becoming, through increased and increasing facilities, equal in learning and ability to any set of men in the world. But the great want is a competent dental literature diffused among the whole people, in the form of books and periodicals.

LANCASTER, Ohio.

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### ADVICE TO DENTAL STUDENTS.

BY C. A. MILBANK.

It is of the utmost importance that at the commencement of our course we should examine our taste and natural abilities, for "a poet is born, not made," and it is not every man who can make a dentist. Having determined to make this work the labor of our lives, let us consider what should be done to acquire the best possible information upon the subject. Upon this point too many of us have the false notion that if we only put ourselves under the tutelage of some good practitioner for a few months we may then rush into practice, full fledged, and equal to any emergency. But, practically, to what does this amount? Why, just this: one of us may go into the laboratory of an old practitioner, for he will see but very little of the operating room, a looker-on not being agreeable to the majority of patients. In the laboratory, for the first few weeks, by way of learning the ropes, he may clean the bowls, empty the plaster boxes, and his hands may become acquainted with pumice, rotten stone and oil, rouge, whiting, and brush wheels, and his foot with the lathe treadle, till his tendo achillis and tibialis anticus ache worse than the biceps of a blacksmith's apprentice. While resting from his labor at the lathe he may investigate hydrology and thermotension; that is, he may watch the vulcanizer. When at this task, if he is not a bold fellow, he is to be pitied, for if he ever knew fear he is sure to renew its acquaintance. The poor fellow has been told to be careful to keep the thermometer standing at 320°; for if he lets the heat go below, the work will not be well done; if above, he may be blown higher than—gold foil at \$8 a book. Here, then, he is between the horns of a dilemma, and his only safety is to remain there; for, take either horn, he is sure of a *blow up*, either from the vulcanizer or his preceptor, so he sits in terror with his eye on the thermometer and his hand upon the regulator, for under his unskillful hand the mercury bobs up and down like a jumping toothache, and he would about as leave have the one, as watch the other.

Having stood this test of his nerves, patience, and endurance, in a few weeks more, if he is a good boy and takes kindly to the treadle, does not



shirk the dirty work, and does not spill the plaster on the stairs, he may be permitted to take a lesson in metallurgy, melting lead and zinc; he may even be allowed to make the mould into which the metal is to be cast; and if he is a careful fellow and strikes square, it is not necessary to "hit straight from the shoulder," he may swedge up the plate. The next step is grinding the teeth to fit their places, and backing them up, as it is technically called. It will take some time to advance beyond this step; but he must not expect to do all in a minute. Having accomplished it, however, which he will find no fool of a job, he may then interest himself in the subject of pneumatics; that is, he may endeavor to breathe through his nose and blow through his mouth at the same time, and watch the effect of the excess of oxygen, which he forces into the blaze, upon the light and heat of the flame. To do this without slobbering like an idiot, requires skill and practice. Having progressed so far, his laboratory education is about completed, and what can he do? Why the impression and articulation being given him he can make a set of teeth. But as for taking the impression or articulation, he knows nothing of either. For, as yet, he has not opened his oyster, only clipped the edge, and sees and feels but the rough outside.

All this is important. A good Catholic must go through purgatory to reach Heaven. Having passed this dental Hades, let him take a course at one of our Dental Colleges; for if he has a true love for the profession, here he can but enjoy himself. Here he can see all sorts of operations, and treat himself all sorts of cases under the eye of one who is perfect in the art, and always ready to give him most kindly aid. Here he will see and gain more in four months, than by four years spent in the private laboratory.

While here, he must keep his "eyes and ears open," for he will find wisdom to fill the one, and beauties for the other. By beauties I don't mean the patients, though some of them are not so bad. He will listen to lectures such as he never heard before, and two hours each day he may spend in actual practice at the chair. Think of that, you poor drudges who mash your noses against the door in your vain attempts to get a glimpse through the key hole! Here, too, the forceps are put into the hands of the poor trembler, and he, who once started and shivered at the mere sight of a lancet, soon becomes a bold and skillful operator. Here he may measure himself with the men around him, and by seeing what others can do will be stimulated to excel himself, and by the interchange of ideas with those around him he may learn much. Besides all this, let me tell you D. D. S. means Doctor of Dental Surgery, and nothing less—should content us.

## DISEASES OF THE MAXILLARY SINUS.

BY GEO. T. BARKER, D. D. S.

The maxillary sinus, as its name indicates, is a large and important cavity, situated in each superior maxilla, extending from the floor of the orbit of the eye, to the palatine process which forms the roof of the mouth, and from the anterior to the posterior surface of the bone. It was first described by a celebrated anatomist, Nathaniel Highmore, and the cavity, in honor of him, has been denominated the antrum Highmorianum, or the *antrum maxillare*. This cavity, in the human body, is nearly closed, there being but a small opening about the size of a common quill, which is situated at the middle part of the middle meatus of the nose, or that part between the lower and middle spongy bones. Besides its periosteal lining, it is invested with a membrane, which is known as the Schneiderian membrane, upon which are distributed important nerves and vessels, also being studded with many mucous follicles, which pass obliquely into it, some of them being arranged in rows.

The maxillary sinus is frequently the seat of disease, differing greatly in variety, extent, and duration; in the great majority of cases, however, the disease is of a simple or non-malignant character, but occasionally the disease which, in its incipient stages, was non-malignant, changes to the malignant type, the disorder then being impossible to overcome, eventually causing the death of the sufferer. At other times the disease will appear at the outset malignant in character, tumors and ulcers of a cancerous nature presenting themselves. The secluded position of this cavity gives great importance to the abnormal conditions which arise within it; thus a simple tumor may go on increasing in dimensions, giving but slight evidence of its existence or presence, and, in consequence of the secluded position, not revealing its true character until, perhaps, its nature is changed, and its destructive march cannot be arrested; the knife of the surgeon but temporarily giving relief, as the disease returns in a comparatively short space of time. It is, therefore, imperatively necessary to give immediate attention to disorders of the maxillary sinus at the earliest possible moment; and as the pain and inconvenience experienced is most frequently, and in many cases justly so, thought to be due to some diseased tooth or teeth, the dentist is the first to be consulted. If he ignorantly makes a false diagnosis, it may be fatal to the patient; if, on the other hand, he recognizes and properly treats, or gives appropriate advice, so that it may be intelligently treated by the skillful surgeon, he will then have accomplished his whole duty, and will have justly performed the requirements of his profession. The lining membrane of this cavity is liable to all the disorders common to mucous tissue in other situations; thus it may become congested, the membrane becoming engorged with blood, effusions of serum, lymph, or hemorrhage from the rupture of

the weakened coats of the vessels taking place into the cavity. It may become inflamed, accompanied with phenomena of suppuration or the formation of pus, or ulceration by the production of an ulcer, or there may be developed within its walls certain morbid growths, having their origin either in the bony structures, or the fibrous tissue in the neighborhood. The presence of any one of these conditions modifies, more or less, the nutrition and secretion of the part, and, as a consequence, the abnormal secretions tend, by their presence, to aggravate and increase the disorder.

I shall first direct attention to the condition last named, as it is the most common, and one which the dentist can treat as well, and perhaps better, than his brother of the medical fraternity. This disorder, in the books, is spoken of as dropsy, or retention of mucus, or as mucous engorgement. It differs from dropsy as seen in other parts of the body, the effusion there being of a thin, watery character, being the serum or watery constituents of the blood, which engorge and distend the cellular tissues and important cavities. The effusion which is seen in the antrum in this disorder is more of the nature of mucus, hence I consider that Harris appropriately termed it mucous engorgement. In the normal state, the secretion of this cavity either escapes into the nostril by the cavity previously mentioned, or evaporates from the passage of air through the nasal passages; but when, from any cause, the antral opening becomes closed, the secretion, finding no means of exit, accumulates in the cavity, and undergoes degeneration. This degenerated fluid, by its presence, excites and irritates the lining membrane, which, in consequence, will pour out more than its usual quantity of secretion. The cavity will eventually become filled, and, as the secretion is still poured out, it will cause the whole of the fluid mass to act upon the bony walls which confine it, and however thick the walls, they must eventually yield, as they cannot withstand the pressure of the enclosed secretion, which is constantly increasing in quantity and force; hence the bones are pushed outwards, and an external evidence is given of the disease by the protrusion of the walls which generally present a rounded appearance to the eye. There is rarely any pain previous to the action of the fluid upon the bony walls, it is then due to pressure upon the delicate nerves which are distributed upon the Schneiderian mucous membrane. The voice of the affected person is apt to be somewhat changed, as they will speak as if suffering from a cold in the head; this is due to the obstruction which exists in one of the nasal cavities and passages.

The integuments externally will appear swollen and red; but the distension may take place in the mouth, under the orbit, or on the cheek, and, unless the fluid be evacuated, it will force the bones asunder. The diagnosis is not always easy; but much light may be gained by seeking

for information from the patient, particularly, if it be an intelligent one. To determine whether it be a solid growth, or only an enclosed fluid, the patient should be questioned as to the absence or presence of pain during the early stages of the disorder. If it is stated that but little inconvenience was felt, accompanied with a sense of weight, and a feeling as if a fluid was present when the head is changed from side to side, it may be safely assumed that the disorder is a simple one and requires but simple treatment. The surest evidence of the presence of a fluid is the fact of its fluctuating beneath the finger; this, however, will not occur until the bony walls have been pushed asunder, or perforation has been made at some point, so that the enclosed mass is only confined by the integuments.

This morbid condition may arise, and frequently does, from the presence of diseased teeth and fangs, and the first indication, in all cases, is to search for, and remove, any such irritants. It may also arise from exposure, particularly if the patient has contracted a severe cold. In my next, I shall consider the different modes of treatment with the other disorders of the antral cavity.

TO BE CONTINUED.

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## A CASE IN PRACTICE.

BY EDWIN C. BAXTER, D. D. S.

The patient had, about a year previous, been in charge of a practitioner who destroyed the nerves of the two superior first bicuspids, and without removing them, filled the crown cavities with amalgam. No inconvenience had been experienced since the operation, until quite recently an abscess had formed at the root of the right bicuspids, and a fistula established through the gum, from which quite a profuse discharge of pus was continually flowing. The filling was removed, the canal thoroughly cleansed, and a fine drill passed entirely through the fang; a broach was next wrapped with cotton to fit the nerve canal, making a sort of piston, which was saturated with creasote, and pumped back and forth in the root, until the agent was forced entirely through the fistula, its effects being plainly visible on the gum at its orifice. The tooth, after being thoroughly cleansed and filled, presented a much better appearance, the color being greatly improved, both by excavating, and the yellow tinge of the gold showing through the enamel.

The nerve canal and crown cavity were immediately filled with gold, it being our practice to fill as soon as the creasote is forced entirely through a fistula. This case was successful, the abscess being cured, the fistula closed, and the color of the tooth very much improved.

The filling in the left bicuspids was next removed, the nerve canal thoroughly cleansed, and filled with floss silk saturated with creasote, over which was placed a plug of cotton and sandarach, and the patient

directed to remove everything from the tooth, in case any inconvenience was experienced. A short time elapsed, and the removal of the plug was required, but the patient failed to follow the directions; consequently, inflammation set in, and when the patient next called, there was evidently a collection of pus at the end of the root.

In treating this, a fine drill was passed through the gum and alveolus to the sac at the end of the root, a slight discharge of pus following its withdrawal. A drill was now passed entirely through the foramen in the fang, a piston formed, and creasote forced from the nerve canal entirely through the opening made by the drill through the gum and alveolus, and the tooth filled immediately, as in the first case, and with the same happy result.

PHILADELPHIA, Pa., December, 1864.

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### A CASE OF IRREGULARITY.

BY H. MEREDITH WHITE, M. D., A. M.

The following case called at the office on August 23d, 1862. The right superior canine was inside of its proper place, the adjacent bicuspid and lateral incisor had approached considerably towards each other and prevented the eye tooth from inclining into its proper position. The patient was aged seventeen years. In the roof of the mouth, for a long time previous, the prominence caused by the tooth could be distinctly felt. The central and lateral and first bicuspid of the right side were somewhat out of place, as the figure will show (.) The main difficulty to overcome was the correction of the canine. It will be seen that the first bicuspid was too far forward. This tooth was drawn back against the second bicuspid by means of ligatures passing around it and the first molar; in the course of a couple of weeks the tooth yielded. Then the plate represented in the cut was placed in the mouth. It was attached to the bicuspid and molars of each side by means of half bands. Over the molars, caps were placed to prevent the jaws closing tightly so as to allow the point of the eye-tooth to pass over the lower teeth. A piece of wire was soldered to the plate next the first bicuspid of the opposite side, and extending across the roof of the mouth and within an eighth of an inch of the irregular tooth. On this wire was placed a piece of spiral spring, partly stretched, to make it a pushing spring, the end of which pressed against the canine tooth. One coil of the spring was turned over and made a concave surface, which adapted itself to the back part of the tooth and retained its place without the aid of further apparatus. The patient went to school in the country, and was able to visit the office but once in two weeks, at which times the spiral spring was stretched or a new and stronger one substituted. To treat the case in a proper manner the patient should have been seen once every three days at least. On

account of the length of time between the visits, the case was not finished until the 16th of May, 1863. The treatment of this variety of irregularity is of great importance. Sometimes it may be necessary to remove the tooth as formerly was the general custom. It seems to be better practice to retain the eye-tooth and remove the lateral incisor, or bicuspid, particularly if the lateral is much decayed, or a small frail tooth, and to endeavor to correct the canine. If in regulating the teeth the upper jaw will become too large and out of proportion to the lower jaw, a tooth had better be removed, but only in cases of actual necessity.

The above method was first used by Dr. J. D. White, and is most efficient and rapid in its operation. The wire within the spring prevents it from bending, and by turning the wire in any direction the force of the spring will be in that direction and will not slip off the tooth. It is far preferable to making holes or niches in the enamel to retain the point of wires that are to be screwed up every few days. Numerous cases have been treated with success by means of the spring. One in particular: a young man, nineteen years of age, the son of a distinguished surgeon of this city, who, with another one, thought it impossible to move the canine tooth by any power. The tooth was near the middle of the roof of the mouth; in about six months the case was finished, and he now has a complete arch of the upper jaw. The same plan can be applied to move a lateral, or bicuspid—any tooth, in fact, upon which the pressure can be directed.

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### MERRIMAC VALLEY DENTAL ASSOCIATION.

BY G. A. GERRY.

The Annual Meeting of the Merrimac Valley Dental Association was held, November 3d, at the Council Room, City Hall Building, Manchester, N. H.

After transacting some unimportant business, proceeded to the election of officers for the ensuing year, when the following named gentlemen were chosen :

*President*—A. Lawrence, M. D., of Lowell.

*Vice-Presidents*—Dr. D. K. Boutelle, of Manchester ; Dr. E. G. Cummings, of Concord.

*Recording Secretary*—Dr. G. A. Gerry, of Lowell.

*Corresponding Secretary*—Dr. L. F. Locke, of Nashua.

*Treasurer*—Dr. S. Lawrence, of Lowell.

*Librarian*—Dr. G. A. Gerry, of Lowell.

*Executive Committee*—Drs. C. Heath, of Manchester ; D. T. Porter, of Lawrence ; A. Lull, of Nashua ; S. L. Ward, of Lowell ; E. G. Cummings, of Concord.

Report of Treasurer was read and accepted.

Dr. I. J. Wetherbee, of Boston, was unanimously elected an honorary member of the Association.

Drs. A. Lull, of Nashua, and W. P. Kelly, of Franklin, were admitted as members.

Dr. W. G. Ward, from a Committee on Dental Fees, appointed at the last meeting, reported, recommending the adoption, by this Association, of a uniform tariff of fees, and presented a list for acceptance; which, for want of time for proper discussion, was laid on the table until the next meeting.

Dr. Locke, from a Committee appointed to take into consideration the matter of publishing a pamphlet, for the education of the people in regard to the teeth, reported; which report was accepted, and the committee discharged.

A communication was received from B. S. Codman, of Boston, stating that he was in no way connected with the American Vulcanite Company, and that his sympathies were entirely with the Dental profession.

A communication was read from Dr. E. G. Cummings, of Concord, and the thanks of the Association were tendered to him for the same.

The following resolution, offered by Dr. Gerry, was unanimously adopted:

*Resolved*, That it is the duty of every Dental practitioner to patronize no man or firm, who are connected in any manner with companies or individuals who are attempting, unjustly, to claim of them remuneration for so-called patents.

Dr. Wood introduced the following, which was adopted:

*Resolved*, That the Merrimac Valley Association of Dental Surgeons heartily approve of the formation of a United States Dental Protective Union, and pledge it our united support; recommending it also to the favorable consideration of the profession generally.

Dr. I. J. Wetherbee then addressed the Association, explaining the objects of the Dental Protective Union, of which he is President.

The following essay was then read:

#### PROFESSIONAL EGOTISM.

BY A. LAWRENCE, M. D.

"Self-love never yet could look on truth,  
But with blear'd beams; sleek flattery and she  
Are twin-born sisters, and so mix their eyes,  
As if you sever one, the other dies "

A reasonable respect for self is indispensable to the well-being and success of every man. Too little or too much is not beneficial in any proper sense, for, in either case, we regard the unfortunate victim as without the pale of propriety. One who has come to the conclusion, *sans* effort, that he has no qualifications, no genius or talents worth respecting, either by himself or others, generally acts in truthful, undisguised unison

with his convictions, and is at any rate an honest man, though a fool. As a dentist, he will be gross in his habits and bungling in his practice. He will take no pains to improve either his head or his hand, for he justly thinks himself a mean scamp, worth neither the trouble nor the expense. Egotists, like other men, are possessed of different degrees of intelligence and education; but with much of either the evil in question could not exist. Great men are not egotists; per contra, egotists are not great men.

Indigenous nowhere, egotism pervades all communities, and seems to spread with civilization, so that even this country bids fair to rival old Gascony, in that for which she was chiefly remarkable. Professional men, of all others, seem most susceptible to the insidious attacks of this dire monster. Clergymen, lawyers, physicians and dentists, are to be found swelling the ranks of the army under General Bombastes.

Leaving to other professions the prerogative of looking after their own affairs, let us examine a representative from each class; the ignorant, and the somewhat learned of our own. "An ignorant dentist" is about the worst title a man ever had or can have, but when the prefix "egotistical" properly applies, it becomes absolutely disgusting. Delighted with the idea of being called "doctor," really unqualified to enter any profession, too lazy to pursue any laborious calling, believing dentistry to require very little brains, yet largely remunerative to those fortunately within its ranks; many a man has so far mistaken his true position as to undertake to discharge the delicate and responsible duties devolving upon the dental surgeon.

Now, the very fact that an ignorant booby is found attempting the practice of dentistry, is *prima facie* evidence of a large amount of concentrated assurance, or egotism; without which he would have foreseen what he had to encounter, and would have entered the profession only after a thorough preparation under the guidance of some able tutor, followed by the endorsement of the faculty of a Dental College. But, ignorant as he is, he thinks himself a genius, needing only a very little "showing" to be superior, or at least, equal to the best. He scorns the idea of putting himself under tuition for two or three years to learn so little, and then wasting his time and money in listening to the "stupid efforts of a set of stuck-up fellows, calling themselves professors," for four or eight months more. Three months occasional attendance in the office of some kind friend, who has, perhaps, "*fixed*" his teeth, is all he needs, and he is ready to "*locate*." Of course he goes to the city, where his services are much needed, and where, in all probability, he will be appreciated, as city people know something, dress better, &c., &c. He takes rooms, and is prepared to render his services to those requiring a *skillful* dentist. He hangs out at the door

"A great uncouth golden tooth,"



and a box, in which a few sets of rudely made teeth clasp and clatter nervously together, as if for a wager. A notice, "Masticating done here," would make the thing complete. He heads his advertisements with a huge wood cut of a set of teeth, tells the public how many years he has been inserting teeth on vulcanized rubber; boasts of the number of "hull" sets he has furnished; enlarges verbosely on his "new machinery, and other extensive improvements introduced into his laboratory," as reasons why he can under-bid the lowest fees; and informs the dear people that, "in consequence of his *long* experience, he is warranted in doing their work in the highest style of the art." How culpable must one be, who should have the temerity to perform a good operation in dentistry with a *short* experience, however well qualified!

Our ignorant egotist has other ways of showing his ruling passion, beside advertising. His dress and manners too plainly indicate how the waters run. Supercilious in the extreme, his blatant conversation, alike disgusting to every one, invariably displays the pronoun of the first person singular at every word. Brutal and bungling in a practice, based upon no theory, he vaunts his skill; to increase the faith of his "customers." Neither inuendoes nor positive lying, about his more worthy competitors for public favor, lack utterance. Their private character is assailed; their public acts called in question; their professional efforts ridiculed and pronounced worthless. All this, and much more, from one who is a nuisance anywhere; but particularly in a profession to which he is a disgrace. How long will the public tolerate and encourage such fellows?

Leaving, in utter disgust, the boastful character just under consideration, I turn to another, and for some reasons, more tolerable class of egotists, i. e., the educated ones. Of these men, comparatively little need be said in derogation, as, unlike the ignorant, they strive to excel, and frequently do. Many of them are splendid operators. They are ambitious and fond of flattery, but their constant tribulation is, an apprehension that all the world will fail to accord to their performances an excellence unapproachable by others. Should an operation of equal, or even superior merit come under their observation, no acknowledgment of such merit escapes them. Probably, or rather possibly, they will admit that "it looks well," and then sneeringly intimate that "friend Chronas will shortly discourse upon the subject;" that "time will tell," &c. Everything they do or say is right; everything done or said by another is wrong, or at least is open to serious objection. They are loud in denunciation of everybody in the practice, except a few kindred spirits, who may chance to reside too far away to come in contact with those "upper ten," who are exclusively *their* friends and patients.

These partially educated egotists, however, do not all, nor always operate

well. A gold filling, which in six weeks presents an appearance about it like a dirty finger nail, they strenuously insist is "all right," if done by themselves, as they never, under any circumstances, do any bad work; but if done by another, it is a fraud upon the patient. Of course such services as *theirs* must be paid for, yet they can never quite make the public come up to *their* notions about fees, and are therefore obliged to accept the miserable pittance of from twenty to one hundred and fifty dollars for filling a tooth, which their superior, in everything but egotism, would have done better for half the money, and thought himself well paid.

An extortionate charge for an operation is not *positive* evidence of skill. This class of egotists are great experts in hobby riding, in practicing specialties, or in doing things in some peculiar way; great in small things: in using certain materials to the exclusion of all others, and in condemning every instrument or appliance not made after *their* pattern.

Certain choice spirits have recently appeared to dazzle the dental world, who insist that the *mallet* is the emblem, *par excellence*, of superior skill, and that those who fill teeth as well, or better, without it, are no dentists, simply *because* they do not use it. It is mallet, mallet, mallet *ad infinitum*. Now I have only to say, that if A can fill a tooth better by its use, it is most certainly his duty to employ it; but if B can do it better without such an implement, it does not necessarily follow that he is a quack, merely because he does not adopt A's practice.

There are many ways in which egotism manifests itself. The M. D. is too apt to look down on the D. D. S., and *vice versa*, and both ignore him with neither title, while the latter despises both. This is all wrong; let charity prevail. Those with titles should not disgrace them, and those without should aim to merit them. The ignorant egotist does not know enough to mend the habit, (for it is nothing else,) and the discerning public understand it; but there is no excuse for the educated man.

The public do not understand why a man should "think more highly of himself than he ought to think," and not "soberly," especially as his education would seem to be sufficient to correct any such unbecoming manifestations. It was said by some ancient genius, that "man was born with a sack on his shoulders," his neighbors' faults in front, and his own behind. That was undoubtedly the case, and rationally accounts for most of our complaints and poor opinions of others, while our own imperfections are neither seen nor thought of, except by those about us. Let us reverse the sack occasionally, that we may, to some extent at least, "see ourselves as others see us."

"A little learning is a dangerous thing;  
 Drink deep, or taste not the Pierian spring:  
 There shallow draughts intoxicate the brain,  
 And drinking largely sobers us again."

## Editorial.

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WE HAVE received from Prof. J. H. McQuillen, in a neatly bound volume, the transactions of the Odontographic Society of Pennsylvania. The Constitution and By-Laws of the Organization, occupying the first few pages, are followed by essays and discussions, showing an appreciation of the subjects on which they treat.

We are indebted to Messrs. Neall, McCurdy & Neall for a molar tooth from the mouth of a human subject, containing two comparatively large projections of enamel from between its fangs.

We received some weeks since the "First Announcement of the New York Institute of Dental Science and Art, established by the Society of Dental Surgeons of the City of New York, and the Brooklyn Dental Association, to meet, in some degree, the demand for dental instruction in that city." In pursuance of this object, the following corps of instructors was duly elected: W. H. Atkinson, M. D., D. D. S., Institutes of Dental Science and Art; C. P. Fitch, M. D., Anatomy and Physiology; J. S. Latimer, D. D. S., Operative Dentistry; John M. Crowell, Artificial Dentures and Appliances; John Allen, D. D. S., Chemistry and Metallurgy.

Since receiving the above announcement, we learn that they opened, as per advertisement, on the 1st of December, under very favorable auspices, having about twenty-eight matriculants. As a means of giving to the student opportunities for a more thorough dental education, and thereby elevating the standard of dental operations, we rejoice in its establishment. Those wishing to avail themselves of the advantages of this school, will address W. H. Atkinson, Dean, No. 109 Ninth street, New York City.

C. N. P.

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WE HAVE received the following note from Dr. James Brown, of Rochester, New York, announcing the death of Dr. MARLOR, and fully do we concur in his appreciation of our deceased friend's abilities. C. N. P.

ROCHESTER, December 7, 1864.

DEAR SIR:—It is with feelings of sorrow that I inform you of the death of Samuel Marlor, of Oldham, England, a graduate of the P. C. D. S., Session 1861–62. He died on the 16th of September, after an illness of two weeks' duration, of chronic ulceration of the stomach. Dr. Marlor was a gentleman, a superior operator, and an enthusiast in his profession; but as we often are admonished, he was called away in the prime of life, and as he was just beginning to reap the reward of years of industry essential to a degree of proficiency in his specialty.

JAMES BROWN.

# PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE NINTH ANNUAL SESSION, 1864-'65.



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**The Lectures to the Regular Course will commence on the  
1st of November and continue until the 1st of March.**

During the last two weeks of October, preliminary Lectures are delivered,  
one each day.

The Rooms for Operative and Mechanical Dentistry are open from the  
1st of October and throughout the session, under the supervision of the  
Demonstrators.

The Dissecting Room, under the superintendence of the Professor of  
Anatomy and Physiology, is open during the session.

<b>Fees for the Course, (Demonstrators' Ticket included,)</b>	<b>-</b>	<b>\$100</b>
<b>Matriculation, (paid but once,)</b>	<b>- - - -</b>	<b>5</b>
<b>Diploma Fee,</b>	<b>- - - -</b>	<b>30</b>

**C. N. PEIRCE, Dean,****C. P. REESS, Janitor.****501 North Seventh St., Philadelphia.**

**P. S.—Board may be had at from \$3.50 to \$6.00 per week.**

**PENNSYLVANIA COLLEGE OF DENTAL SURGERY.****The Ninth Annual Session, 1864-1865.**

The ninth annual session of the Pennsylvania College of Dental Surgery will commence on the first of November, and continue until the first of March. Preliminary lectures will, however, be delivered each day during the latter half of the month of October. The Dispensary and Laboratory of the College will also be open from that time, where ample opportunities will be afforded for the prosecution of the practical part of the profession under the daily supervision of the Demonstrators, who are gentlemen of known integrity and thorough capability. During October, as well as the entire session, a clinical lecture will be delivered, and operations performed by one of the Professors every Saturday afternoon.

The course is so arranged that fifteen lectures are delivered each week, on the various branches taught in the school. A synopsis of the manner in which each department is treated will be found under the head of the different chairs.

These lectures occupy about the average time of three hours each day. In addition, four hours are daily spent by the student in actual practice. With this object in view, the operating rooms are furnished with twenty chairs, so arranged as to command the best light, and all the appliances necessary for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate.

Each student is required to provide his own instruments, (except those for extracting,) and to operate with them. He is expected to keep them in perfect order, and for that purpose is provided with a table in which they can be locked up when not in use. As the operations performed at the College are entirely gratuitous, a superabundance of patients invariably present themselves.

In the mechanical department every process known in the profession, which has any value to the mechanical dentist, is fully taught; and receipts of valuable compounds are freely imparted. All the conveniences are at hand in the Laboratory for the preparation of metals, manufacture of teeth, (single and in blocks,) mounting, etc.; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression to the thorough construction of the denture, and proper adjustment of it in the mouth of the patient.

In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of Dentistry, the celebrated hospitals and clinics of the city constantly enable the student to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Blockley Hospital, in particular, one of the largest eleemosynary establishments in the world, are open to Medical and Dental students, free of charge. The staff of this institution is composed of some of the most eminent physicians and surgeons of Philadelphia.

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## COURSE OF LECTURES.

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### CHEMISTRY AND METALLURGY.

The course of instruction from this chair will commence with the consideration of the imponderable substances.

The laws that govern the imponderable bodies will next claim attention, with some notice of symbols or chemical notations. Individual elements, and the compounds resulting from their combinations, will then be considered. Organic chemistry will receive its full share of attention.

The course will be illustrated by diagrams and such experiments as can be performed before the class.

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### DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.

The lectures in this department will embrace the Physiological Anatomy of the teeth, general and microscopical, in addition to a minute and careful description of the various operations performed by the dental practitioner.

The microscope, models and diagrams, will be employed in illustration.

At the Clinic the incumbent of this chair will also demonstrate before the class the various operations described in his course of lectures.

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### MECHANICAL DENTISTRY.

The instruction from this chair will embrace the entire range of manipulations legitimately connected with the laboratory, arranged in two divisions—Mechanical Dentistry proper, and that to which has been applied the appellation of the Plastic department.

I. *Mechanical dentistry proper* will include everything appertaining to the construction of dental substitutes, passing through the different stages of preparation, from taking the impression, to the completion and proper adjustment of the case in the mouth, conjointly with features, expression of countenance, enunciation, etc. It will likewise embrace the metallurgic treatment of the various metals employed, the preparation of plate and wire, the alloying of gold, together with the *alloys* used, as well as those designated as solders.

II. This division will comprise all that appropriately belongs to the manufacture of porcelain or mineral teeth—single teeth, block-work, continuous gum-work, vulcanite, etc. The materials, their preparation, compounds and uses, will be specially regarded.

All new inventions, modifications, and improvements, in this branch of the art, will in place receive due attention and investigation.

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### PRINCIPLES OF DENTAL SURGERY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist.

They will also include a careful examination of therapeutic agents and their general application. Their indications in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated, and also the general hygienic rules and principles which come within the province of the practitioner.

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### ANATOMY AND PHYSIOLOGY.

The instruction in this department will embrace a plain and comprehensive view of the structure and functions of the Human Economy. The valuable anatomical preparations of the incumbent of this chair, (consisting of Papier Mache manikins, models in wood, drawings, wet and dry preparations,) will enable him to fully illustrate his course. With the same object, vivisections on the lower animals will also be employed.

The special relations of this branch to the wants of the dentist will be kept steadily in view, and such descriptions of the natural history, microscopical structure, connections, &c., of the teeth, as their importance demands, will be given.

The great facilities for the study of practical anatomy, to be found in the city of Philadelphia, obviate the necessity of providing a dissecting-



room in the College. For the usual fee of \$10, the student can have access to one of several well-ordered and well-supplied dissecting-rooms.

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### REGULATIONS.

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The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College; five years' practice, inclusive of the term of pupilage, will also be considered equivalent to the first course of lectures. The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done, at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees; and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

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### TEXT BOOKS AND WORKS OF REFERENCE.

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Wilson's, or Leidy's Sharpey & Quains' Anatomy; Carpenter's Physiology, or Dunglison's Human Physiology; United States Dispensatory; Mitchell's Materia Medica; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; C. J. B. Williams' Principles of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Paget's Surgical Pathology, or other standard works on the subject.

# THE DENTAL TIMES.

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No. 4.

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## DISEASES OF THE MAXILLARY SINUS.

BY GEO. T. BARKER, D. D. S.

[Continued from p. 119.]

Having, in a previous communication, considered the disease of the sinus known as mucous engorgement, or dropsy of the antrum, the present article will be devoted to the different modes of surgical and therapeutical treatment. The surgeon having determined, by the diagnostic signs previously mentioned, that it is a fluid, and not a solid mass which is enclosed in the sinus, recognizes the importance of immediately forming such an artificial opening as will allow the escape of the retained mucus, and also to make such applications to the lining membrane as will restore its normal healthy secretion. The first indication, therefore, in the treatment of this disorder, is to make an artificial opening into the maxillary sinus; this is readily accomplished, as it is accessible at many points, and perforation may be performed at almost any without danger. Different points have been selected; thus Jourdain, an eminent writer on disease of the sinus, recommends that the natural opening into the nares be selected, and he invented a peculiar instrument, which was to be inserted into the nostril, and was then pressed into the natural opening of the antrum. This mode of operating was found to be exceedingly difficult, and has been generally abandoned. The best point of perforation is at the apex of one of the fangs of the first or second molar teeth, but if these teeth are sound, and either of the bicuspid teeth are carious, they should be removed, and perforation made at that point in preference to extracting a sound molar. Surgeons, as a general thing, do not observe this rule, and we have had, in many instances, patients sent with the request that sound molar teeth might be extracted that an artificial opening might be made into the antrum, where bicuspid teeth, just in advance, were carious or absent. There are, however, honorable exceptions to the above; surgeons who recognize the great importance of masticating organs, and use every effort to preserve them to the patient. There are some advantages to be gained by having the opening made

through the fang of one of the molar teeth; one is, that in some cases these fangs enter the sinus, thus obviating the use of a perforating instrument, but the most decided advantage to be gained is due to the fact that the floor of the sinus at this point is more depending; hence the secretion is more apt to drain out of the cavity than where the opening is made at some other point. Some operators object to the extraction of any teeth that can possibly be preserved, recommending instead that perforation be made between the teeth, or on, what dentists would term, the buccal surface of the jaw. Where extraction is performed of the molar tooth, and one or more of the fangs enter into the antrum, mucus will immediately escape, but where they do not enter the cavity, it becomes necessary to make an opening with an instrument; this should be performed with a straight trocar, care being taken not to wound the opposite sides of the cavity when it enters. The opening should be large enough to allow the free escape of the abnormal secretion, and it is sometimes necessary, to prevent its closing up by adhesive inflammation, that a canula of lead or silver be introduced, which is retained in position by being secured to the adjoining teeth. Having evacuated the contents of the cavity, which varies greatly in quantity in different cases, the next step in the treatment is to select an appropriate fluid, to inject into the sinus for the purpose of cleansing the membranes, and at the same time to produce an astringent influence. There are two different modes of practice recommended by certain writers on this subject. One class advise that strong injections be used: for instance, a wash, composed of at least ten grains of nitrate of silver to the ounce of water, introduced twice a day, until there is unequivocal evidence of a complete change in the nature of the morbid action. I allude to this mode of practice for the purpose of condemning it, having been satisfied that, though it may succeed in some instances, in the vast majority it either completely fails, or what is worse, only aggravates the existing trouble, increasing the discharge, and protracting the disease. A much more rational, and, in my judgment, a safer and better plan, is to use the mildest possible injections, consisting of weak solutions of sulphate of zinc or acetate of lead, the quantity of the salt not exceeding the third or half a grain to the ounce, or, at the most, a grain to the ounce of water; this may be used three or four times daily, and often exercises a wonderful controlling influence over the disease. Or, instead of this, some of the vegetable astringents may be selected, tannic acid for instance, which, in the proportion of two grains to the ounce of water, employed several times during the day, is exceedingly useful. Finally, I frequently use, with excellent results, simple bland astringent injections, as green table tea, weak solutions of alum, or any mucilaginous fluid, with which a few drops of laudanum have been

mixed. At the suggestion of a professional friend, I was induced to try, in a case that gave considerable trouble, an injection of pure cider vinegar, commencing its use in the strength of one part in eight of water, gradually increasing its strength until the patient could use the vinegar undiluted and I found it to be of exceeding value. Injections of port wine and water are, in some cases, quite useful. For this condition of the maxillary sinus, however, astringents seem to be particularly adapted, as they act upon the lining membrane in two or three ways; by union with the tissues they condense and consolidate them, thus preventing the secretion from passing through the membrane as readily; and, by union with certain constituents of the blood, favor a cessation and diminution of the discharge. Many of these cases of dropsy of the antrum are exceedingly trying, both to patient and practitioner, as they will apparently be cured, and in a few days will reappear, the discharge being more offensive than at first; this foetid condition may be readily removed by using injections of table salt and water, and, indeed, in the treatment of this disorder, one of the most imperative demands for successful treatment is strict attention to cleanliness, frequent injections being demanded to remove the abnormal secretion.

I will detail a single case which recently occurred in my practice, for the purpose of showing how careful we should be in the formation of a diagnosis. A lady presented for treatment with dropsy of the antrum. An artificial opening was made for the evacuation of the fluid secretion, though the natural opening into the nares was unclosed, and the discharge had been taking place, for some time, into the nose. After the fluid had passed into the mouth, a mild astringent solution was thrown into the antrum. I was much surprised to notice that the injected fluid passed out of the nostril on the opposite side of the diseased sinus. This phenomena was repeated at every subsequent visit, and I was forced to the conclusion that there was a hole in the vomer, through which the fluid passed. An eminent surgeon was called in, who also was led to believe that there must be some lesion to allow the fluid to pass out in the manner described, but a careful examination failed to detect any abnormal condition. At last we discovered the cause, and found it to be due to the position of the head; when the patient would sit in a nearly erect position in my dental chair, the fluid would pass backwards along the posterior nares on the affected side to the soft palate; thence around the vomer on the soft palate to the opposite nostril. When the patient was directed to throw the head forward over the spittoon, and the injection was thrown into the antrum, it was found that it passed out of the nostril on the affected side. This case is detailed for the purpose of showing the care requisite in determining the nature and extent of the disorder and the requisite treatment.

## AMALGAM FILLINGS.

BY H. A. ROBINSON, FOXCROFT, MAINE.

We all find it necessary, especially in country practice, to make an occasional amalgam plug, and as we use this material as we do other, for the purpose of preserving, as long as possible, the health and usefulness of the tooth treated, it is necessary to success that the cavity be thoroughly and carefully prepared. The materials, after being mixed into a stiff paste, should be washed well with a spoonful of alcohol, the mass should then be taken from the alcohol, which will be found to be very dark-colored and impure, and all moisture absorbed in a napkin; press out the superabundant mercury by any means preferred, and it is ready for introduction. I use for this purpose a piece of heavy buckskin, twisting it between my thumb and fingers. Care should be taken in introducing the filling that it be pressed firmly, with suitable instruments, into all parts of the cavity, so closely, that although it has been made as dry of mercury as possible, yet, when the plug is finished, it will present a smooth glossy surface. Finish up with a suitable burnisher, working from the centre towards the edges of the cavity as with "Wood's metal." After hardening one day, the surface should be burnished. The materials should be the best and purest that can be obtained; of mercury, use the "redistilled;" for a base, use that which experience teaches is the best. My experience is this, my preceptor, when he wished to make an amalgam filling, (following in the old path in which his preceptor had walked,) would sit down to the bench, file in hand, and from an old "Spanish quarter," prepare sufficient for the occasion. This I thought was wasting precious time, besides, I noticed these fillings would, in a short time, become quite black, often coloring the tooth very much. When I commenced practice, I bought and used precipitated silver; soon, by the advice of a friend, added a little tin foil, this improved the color, but diminished their strength. I soon found, to my sorrow and chagrin, that some of my amalgam fillings were wearing away very fast, others were crumbling out—the material did not make a strong filling. My next step was to send to a dental depot for a little of Townsend's and Lawrence's amalgam, to see if either of these were better than what I had been using. I found the Townsend's so coarsely prepared, that it required considerable time to fit it properly for use, and the plugs, when made, were not *hard* enough nor *strong* enough; the color was good. The Lawrence's I found was evidently an entirely different composition; it was *fine*, could be quickly and easily prepared for the cavity, works well, is very dense, *hard* as adamant, and retains its original color well. If you would make a *good* amalgam plug, follow these simple directions, and use Lawrence's amalgam, and you cannot fail.

I hope that no one will construe the tenor of this article as advocating amalgam to the exclusion of *better* material. My object is to show that there is a higher standard of excellence even in *this* direction than many in the profession have attained to, and to show what I was once ignorant of, and what many do not seem yet to have found out, that a *good* amalgam filling, and one that "will not turn black," can be made by proper manipulation, and the use of the *right materials*.

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### THE STEAM GAUGE IN VULCANIZING.

BY A. LAWRENCE.

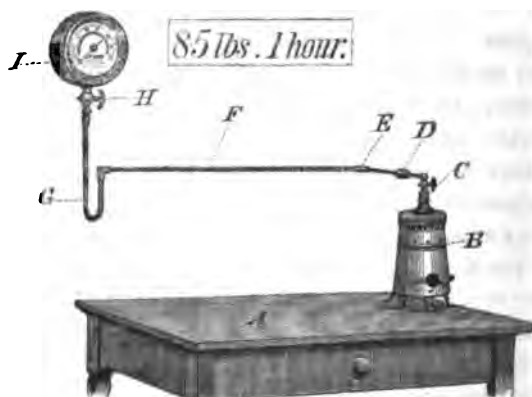
In a short article of mine on Steam Pressure in Vulcanizers, which appeared in the January number of this journal, among other things I alluded to the fact that I had dispensed with the thermometer, using a steam gauge instead, and stated some of the advantages secured, as I think, by the change. I am induced to offer what follows, from a belief that the article named was not sufficiently explicit so far as relates to the use of the gauge; this impression being strengthened by the receipt of letters of inquiry from several members of the profession in different parts of the country. That solutions to such queries as, "Will the gauge fit vulcanizers of different manufactures? How do you ascertain the temperature in degrees? What does it look like, and what is the price?" &c., &c., are invited, does not surprise or annoy me in the least, for dentists as a general thing have had nothing to do with such an instrument, nor, until vulcanite came into use, with a thermometer even, except as the indicator of calorific fluctuation. Without further regard to preliminaries, permit me to say to all interested that the gauge most suitable for the purpose in question somewhat resembles a small circular clock, is about six inches in diameter, and marked to register 140 or 160 pounds pressure, with pound dots near the outer circle of the dial; a pointer indicates the force which moves it. This size is better than a smaller one, because the spring inside, not being crowded to its utmost capacity in vulcanizing, will, of course, retain its working integrity longer; in fact, as long as any dentist now living will be personally interested in the matter. The price of such a gauge at this time is \$18, and though more expensive ones can unquestionably be made, they are no more reliable, the difference consisting in mere "outward show and adorning." They can be used with all vulcanizers generating steam, connecting by means of three or four feet, or as much more as may be convenient, of small pipe, having a U-shaped bend, or a single coil, near and under the gauge to receive the condensed steam, as water alone should enter that instrument.

The following table exhibits a range of pressures sufficient for vulcanizing purposes, with the temperatures necessary to produce the same:

Pressure in pounds.	Temperature.	Pressure in pounds.	Temperature.	Pressure in pounds.	Temperature.	Pressure in pounds.	Temperature.	Pressure in pounds.	Temperature.	Pressure in pounds.	Temperature.
60	295+	65	301+	70	306+	75	311+	80	315+	85	320+
61	296+	66	302+	71	307+	76	312+	81	316+	90	324+
62	298+	67	303+	72	308+	77	313+	82	317+	95	328+
63	299+	68	304+	73	309+	78	314	83	318+	100	332+
64	300+	69	305+	74	310+	79	314+	84	319+	105	335+
										110	339+
										115	342+
										120	345+
										125	349+
										130	352+

It will readily be seen by the above that a pressure of 60 pounds requires a temperature of 295 degrees, by Fahrenheit's scale, to produce it, and 85 pounds, 320 degrees, at which latter pressure I vulcanize, running one hour, and with the most satisfactory results. The manner of putting up and using the gauge is very simple. All that is required is to secure it, by screws passing through the flange on the back; in some conspicuous and convenient place, attach a pipe and carry it down ten or twelve inches, give it a bend or curve upward about half its length, or five or six inches, thence at right angles or otherwise, and in any convenient length not less than three feet to the vulcanizer.

The annexed cut is from a photograph of a Whitney vulcanizer, with the gauge attached, but is by no means the only arrangement which can be made, as, in some cases, convenience may require more pipe or a different distribution.



A, table or work-bench; B, vulcanizer; C, side outlet pendant cock, screwed on in place of the thermometer scale; D, coupling joint; E, angle in the pipe; F, iron pipe, 3-16 inside; G, U-shaped curve, five or six inches in depth; H, cock to the gauge; I, gauge.

The fitting, putting up and arranging the apparatus can be done in an hour's time by any gas-fitter; or, to those residing away from cities or towns where such mechanics are employed, can be furnished to order by them, or by the parties furnishing the gauge. All the joints from the vulcanizer to the gauge, except the coupling, should be "leaded" with very thick lead paint, and screwed together steam-tight. In using the apparatus, the cocks C and H must be turned straight with the pipe; for, if shut off at either point, the gauge cannot be acted upon by the steam.

I generally heat the water in the vulcanizer nearly or quite to the boiling point, and let off the heated air by turning, or allowing to remain open, the cock C, then connect at the coupling D, turning the nut tight, (not too tight,) with a wrench. So soon as the steam begins to form, it is condensed by contact with the cold part of the pipe, and falls into and fills the curve, or coil, with water, which is then forced into the gauge with a power indicated by the pointer on the dial. The pipe should descend a trifle from the angle E to the commencement of the curve, to facilitate the passage of the condensed steam to that point. Although vulcanizing one hour at 85 pounds affords results satisfactory to me, others may prefer a different time, with more or less heat. The table will be found a sufficient guide in such cases. When the time is up, discontinue the fire, and shut off the steam by turning the cock C. Turn the cock H in the same manner to prevent a too sudden reverse movement of the machinery of the gauge, the pressure on which should be gradually relieved at any convenient time. Now disconnect by unscrewing the coupling, and dispose of the steam in the vulcanizer by blowing off, or any other means preferred. Further remarks would seem unnecessary to a full understanding of the subject. Having used the gauge almost every day for about six months, I am fully satisfied that it is a decided improvement in vulcanizing, and am so delighted with it that no reasonable sum would induce me to substitute the thermometer.

Before closing, I may be permitted, in justice to the American Steam Gauge Company, of which Mr. H. K. Moore is Superintendent, to correct an error in my former communication, in locating their office at No. 44 Exchange, instead of No. 44 Congress street, Boston.

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### NINTH ANNUAL COMMENCEMENT OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

BY JAMES TRUMAN, D. D. S.

The Ninth Annual Commencement of this Institution was held at Musical Fund Hall, on the evening of February 25, 1865. Notwithstanding the unpropitious character of the evening, a large and attentive audience was present to add interest to the occasion. We were pleased



to notice many eminent members of the profession on the platform; and were this interest felt by a still larger number, it would not only add to the character of the proceedings, but would strengthen the hands of those who occupy the arduous positions of educators in the profession. We hope this interest may grow, and as each returning year brings with it the commencements of the different colleges, we may find members of the profession everywhere throwing aside the care and toil of daily duty for a short relaxation in a pleasant reunion with old friends, and together give the young aspirant for professional success all the encouragement possible at the opening struggle for future excellence.

The order of exercises consisted of music by the Germania Orchestra, prayer by Rev. Mr. Washburne, conferring the degrees, and the valedictory address by Dr. E. Wildman, Professor of Mechanical Dentistry.

The Degree of Doctor of Dental Surgery was conferred upon the following named gentlemen by the Henry C. Carey, President of the Board of Trustees.

#### GRADUATES, 1864-65:

Gaspar A. Betancourt, Cuba, . . Filling Pulp Cavities and Roots of Teeth.  
 Samuel A. Beecher, . . . Mo., . . . Sulphuric Ether.  
 Howard Bassett, . . . . . N. J., . . Diseases Incident to First Dentition.  
 Benj. J. Bing, . . . . . Md., . . Dentistry, a Science.  
 J. Wesley Clemson, . . . Pa., . . Predisposing Causes to Dental Caries.  
 August Culman, M. D., Bavaria, Neuralgia of the Trigemini.  
 Edwin T. Darby, . . . . . N. Y., . . Dentistry, a Profession.  
 Horace Enos, . . . . . Pa., . . Vulcanizer Rubber.  
 Simon Frau, . . . . . Cuba, . . Ether.  
 Michele Fichera, . . . . . Sicily, . . Filling Teeth.  
 J. N. Farrar, . . . . . Mass., . . Intermittent and Hysterical Neuralgia.  
 Simeon H. Guilford, . . Pa., . . Vascularity of Dentine.  
 James O. A. Johnson, . N. J., . . Extraction of Teeth.  
 John Lyman, M. D., . . Ireland, Military Dentistry.  
 C. A. Milbank, . . . . . N. Y., . . Diseases Attending First Dentition.  
 Chas. B. McGrath, . . . Pa., . . Hysteria.  
 Wm. A. Newland, . . . Pa., . . Fractures of the Teeth.  
 Abram Pratt, . . . . . Pa., . . Odontology.  
 S. G. Perry, . . . . . N. Y., . . Inflammation.  
 P. Preterre, M. D., . . . N. Y., . . Development of Teeth.  
 Jared A. Perkins, . . . Mass., . . Cause of Dental Caries.  
 Thos. Robinson, . . . . . Del., . . Irregularities of the Permanent Teeth.  
 Thos. Robson, Jr., . . . Pa., . . Rubber.  
 Hewlett C. Rockwell, . N. Y., . Nitrous Oxide.  
 A. Emory Street, . . . . . N. J., . Entire Artificial Dentures.

W. H. Scholl,.....Pa.,...Indurated Rubber.  
 Geo. B. Sanford,.....N. Y.,...Teeth and their Diseases.  
 J. B. R. Wriggins,...Y. J.,...Caries of the Teeth.  
 J. A. Woodward,.....Pa.,...Treatment of Exposed Dental Pulp.

The Honorary Degree of Doctor of Dental Surgery was conferred upon the following gentlemen:

Theodore S. Evans,.....Paris.  
 J. M. Barstow,.....Philadelphia.  
 Jesse C. Green,.....West Chester, Pa.  
 J. D. Wingate,.....Bellefonte, Pa.  
 Mahlon Kirk,.....Philadelphia.

The following comprises the full list of Matriculants for the Session of 1864-65:

Robert Jas. Adams,.....N. Y.	C. B. McGrath,.....Pa.
Benjamin J. Bing,.....Md.	Francis Mignotte,.....Cuba.
Samuel A. Beecher,.....Mo.	Charles A. Milbank,.....N. Y.
Henry Blakeney,.....N. Y.	William A. Newland, Jr.,...Pa.
Howard Bassett,.....N. J.	P. Preterre, M. D.,.....N. Y.
Jose Bertram,.....Cuba.	James Parsons,.....Wis.
Gaspar A. Betancourt,.... “	Abram Pratt,.....Pa.
John R. Buckingham,.... Pa.	S. G. Perry,.....N. Y.
Edwin C. Baxter, D. D. S.,...Maine.	Jared A. Perkins, .....Mass.
J. Wesley Clemson,.....Pa.	James R. Roney,.....Pa.
August Culman, M. D.,...Bavaria.	Thomas Robinson,.....Del.
P. M. Christie,.....Pa.	Thomas Robson, Jr.,.....Pa.
Frederick K. Crosby,....Conn.	Hewlett C. Rockwell,....N. Y.
Edwin T. Darby,.....N. Y.	H. P. Roberts,.....Ill.
E. S. Davenport,..... “	H. C. Register,.....Md.
Horace Enos,.....Pa.	A. Emory Street,.....N. J.
Michele Fichera,.....Sicily.	John Sheldon,.....N. Y.
Simon Frau,.....Cuba.	C. S. Stockton,.....N. J.
John N. Farrar,.....Mass.	William Smedley,.....Pa.
Enoch S. Fogg,.....Pa.	George B. Sanford,.....N. Y.
John Frasier,.....Md.	Wm. H. Scholl,.....Pa.
Simeon H. Guilford,.... Pa.	Wm. H. Trueman,..... “
Jesse C. Green,..... “	A. P. Tompkins,..... “
Canby Hatheway,..... “	J. J. Vanderford,.... .Md.
James O. A. Johnson,.... N. J.	Carlos Del Villar,.....Cuba.
Jonas Y. Kern,.....Pa.	Augustin De Varona,.... “
Daniel J. Lally,.....N. Y.	J. A. Woodward,.....Pa.
Wash. R. Lineaweaver, ..Pa.	J. B. R. Wriggins,.....N. J.
John Lynam, M. D.,.....Ireland.	

The Demonstrators report the following number of operations performed in their departments during the past session.

DEMONSTRATORS' REPORT, SESSION OF 1864-'65.

OPERATIVE DEPARTMENT.

Number of Patients visiting the Clinic,.....	2,600
Number for whom the following operations were performed,.....	1,487
Gold Fillings,.....	627
Tin " .....	696
Wood's Metal,.....	9
Hill's Stopping,.....	14
Amalgam,.....	12
Treatment and Filling Pulp Cavities,.....	176
Superficial Caries Removed,.....	6
Removal of Salivary Calculi,.....	57
Treatment of Periostitis,.....	28
"    Alveolar Abscess,.....	10
"    Inflammation of the Gums,.....	5
"    Partial Necrosis,.....	15
"    Irregularities,.....	10
Pivot Teeth inserted,.....	2
Extraction of Teeth and Roots,.....	2,010
Total,.....	3,677

JAMES TRUMAN, *Demonstrator*.

MECHANICAL DEPARTMENT.

154 Patients were supplied with the following Artificial Dentures:

Whole sets of Teeth,.....	31
Full Upper Sets,.....	48
"    Lower Sets,.....	2
"    Upper Set Blocks,.....	1
Partial Upper Sets,.....	76
"    Lower Sets,.....	4
Obturator*,.....	2
Teeth Mounted on Metal Plates,.....	528
"    Hard Rubber Base,.....	1,481
Whole number of Gum Teeth,.....	902
"    "    Plain Teeth,.....	1,107
Whole number of Teeth Mounted,.....	2,009

J. M. BARSTOW, *Demonstrator*.

\* These were made for soldiers having lost their teeth and adjacent bones from gunshot wounds.

These reports give to those unacquainted with the operations of the two departments, but a limited idea of the character of the work performed. Mere numbers will not express it, hence the general feeling is one of surprise, that with so large a class, the operations, in a numerical point of view, should occupy so limited a space.

In the Operative Department, two hours each day are devoted either to practical effort, or to observation of cases in the hands of others. The character of a large number of the fillings inserted during the past winter, is a gratifying assurance to those who have defended this mode of education through good and evil reports, that their labor to elevate the standard of professional ability is beginning to bring its full reward. Young men are now going forth, to take their places in the great army of laborers in our specialty, who, while they possess the requisite theoretical knowledge necessary to enable them honorably to fill the position they may in the future occupy, have combined with it that degree of manipulative skill, that must leave its impression upon every community in which they may locate.

The ceremony of conferring the Degrees, was followed by Dr. Wildman, in the closing charge to the graduates, which was delivered in a peculiarly feeling and impressive manner. A full report of which we append.

### VALEDICTORY.

GENTLEMEN:—In times past, in looking around you among the varied pursuits by which man gains a livelihood in his pilgrimage through life, you then selected our profession as the one most congenial to your tastes, and with a laudable ambition you determined to qualify yourselves for the position of your choice; disdaining to go forth in the world as, I regret to say, too many have done, palming themselves upon the community as proficient, when they were devoid of even the first principles, theoretically or practically, thereby bringing discredit upon the profession.

After a course of study, under the care and instruction of your private preceptors, you enrolled yourselves as students of the Pennsylvania College of Dental Surgery, wherein are taught the various branches of science relating to dentistry.

By the Chair of Anatomy, you were instructed in the wondrous mechanism of the human frame, a portion of which, it will now be your province to treat professionally; the function of each organ, the perfect symmetry and adaptation of each and every part to perform its office in harmony and in co-operation with the others, all working for the common good, naught made in vain, displaying in the design and perfection of its intricate organism the master-piece of His handiwork.

By the Chair of Chemistry, the laws governing the elementary sub-

stances were unfolded to you, their affinities, their combinations, and the effect of such combinations upon each other, whether organic or inorganic, whereby the laws and properties of matter were revealed to you, enabling you to select your remedial and other agents with judgment and discretion.

By the Chair of Therapeutics and Principles of Dental Surgery, you were instructed in the properties of the medicinal agents used in our practice; general pathology, the pathological relations of the teeth to the other parts of the system, and the general hygienic rules and principles which come within the province of the practitioner of surgical dentistry.

The Chair of Dental Physiology and Operative Dentistry fully exemplified the physiological and special anatomy of the teeth, and the various operations upon them.

By the Chair of Mechanical Dentistry, you were instructed in the history and properties of all the substances and combinations used, or likely to be called into requisition in the construction of dental substitutes, and their proper application.

In addition to all this, you were required, under the guidance and supervision of able and efficient demonstrators, to make practical application of the principles taught by the various chairs. And the benefits thus conferred, by your labors upon hundreds of patients who sought relief at our dispensary, (whose means would not permit them giving any pecuniary reward for such service,) will be long remembered with grateful acknowledgments.

And now, at the close of the session, your practical operative and mechanical operations having met with the approval of the proper authorities; and then, after having passed an examination by the faculty, by their united recommendation of your ability and merit, the Board of Trustees have this evening conferred upon you the Degree of Doctor of Dental Surgery. This is no idle compliment, no unmerited reward; but one which, by diligent application and study you have honorably acquired.

And now, gentlemen, in behalf of the faculty of the Pennsylvania College of Dental Surgery, it is my pleasing duty to extend to you our congratulations for the happy result of your labors, and bid you a hearty welcome to the ranks of our profession.

Although your course of studies has been completed, your connection with the college severed, and you have been esteemed worthy to assume a position with us; do not deceive yourselves with the idea that your labors in the pursuit of science are ended. You are now placed upon a basis which, by your diligence and application, will be a stepping-stone to future eminence.

The profession which you are now entering is not of recent origin, on the

contrary, we have ample proof of its great antiquity. The knowledge of, when and by whom dentistry was first practiced, is lost in the mists of time; we occasionally catch glimpses of it in the writings of the ancients, and in the relics of past ages.

Abraham, a wanderer from Mesopotamia, where, as yet, no great monarchy had arisen, found Egypt already ruled by a Pharaoh, and in all probability as far advanced in social improvements as we know it to have been in the days of his great grandson Joseph. This people, it is conceded, were the first to establish civilization and law, to cultivate science, letters and art. From Egypt civilization came to Greece, from Greece to Rome, from Rome to the remoter regions of the West, whence it has been carried throughout the globe.

In the fragmentary history of this country, we find the first record extant of dentistry. Herodotus, in speaking of ancient Egypt, says, "every place is full of physicians. They are required to practice according to certain precepts, established by men of high reputation, and handed down from ancient times in the sacred books. Six of these are enumerated by Clemens Alexandrinus, one treating of the structure of the body, another on disease, a third on medical and surgical instruments, a fourth on drugs, a fifth on the eyes, and the sixth on female diseases. This division and arrangement, comprehending anatomy, physiology, pathology, pharmaceutics and surgery, indicates an advanced state of the science. The different branches of practice were minutely subdivided, and each practitioner confined himself to one. Some were oculists, some dentists, some treated diseases of the head, some of the bowels, and some of uncertain seat. Such appears to be the natural tendency of medical practice when carried to a high degree of experimental skill, and exercised among a numerous population." "Their system was prophylactic. Attention to diet was a leading principle in it, they considered food as the great source of disease, and endeavored to counteract its ill effects by frequent fasts, as well as by medicine." Herodotus further observes, "that except the Libyans, the Egyptians were the healthiest race with whom he was acquainted, and he attributes this to the absence of those extremes which, in other countries, make the changes of the seasons dangerous."

You will thereby perceive that the Ancient Egyptians were provided with dentists, by a system of medical practice, handed down to them from ancient times. This extreme subdivision of the profession, unless counteracted by a comprehensive education, must have tended to reduce the medical practice to a mechanical art.

As a further proof of dental operations in those days, Sir J. Gardiner Wilkinson, in his work on the Ancient Egyptians, remarks, that "it is a singular fact that dentists adopted a method not very long practiced in

Europe, of stopping teeth with gold, proofs of which have been obtained from some mummies of Thebes." And further, Belzoni and others, discovered rudely manufactured teeth in the sarcophagi of the Egyptians.

As to the state of advancement of the dental art by the Ancient Egyptians, we have little or no information. The destruction of the Alexandrian library, that vandalism, has blotted out of existence, and forever hidden from our view the written records of their history, their knowledge of science and the arts, which was treasured in that great storehouse of ancient learning. Yet, judging by comparison, when we take into consideration the manner in which they excelled the after ages in many of the arts, (and some are now just being re-discovered;) they were more proficient in this specialty than those who followed them. The Israelites, immediately after their exodus, are known to have had great skill and proficiency in the working of metals, in cutting and setting precious stones, making and coloring fabrics for the tabernacle, and for the priest Aaron and his sons, as is recorded in holy writ, which could only have been acquired by them in the country they so recently left. "And Moses was learned in all the wisdom of the Egyptians."

Much has been said and written respecting the antiquity of medicine; but these facts, and numerous others which might be cited, prove conclusively that dentistry claims nearly, if not quite, the same antiquity.

Dr. Dickerson, of Mississippi, states that in penetrating the mounds of the South Western States, he found interesting relics, such as mica mirrors, silver and copper ornaments, beads of jasper, agate, &c., similar to those found in Mexico; and several pearls of great beauty and lustre of an inch in diameter. By examination of the skulls, he discovered that dentistry had been extensively practiced by this ancient people, as fillings in teeth and artificial ones were frequently met with. This is not only another evidence of the antiquity of dentistry, but it is strong corroborative testimony that this country, at some remote period, was peopled by a race far advanced in civilization.

Albucases, an Arabian physician, who lived in the early part of the eleventh century, wrote on the diseases of the teeth, and gave drawings of a number of instruments then in use for extracting, scraping, and other dental operations; he refers to filing teeth, and fastening loose ones with gold thread.

It was not until the end of the sixteenth century that the dental art began to receive the attention to which its importance and utility so eminently entitled it. About this time numerous treatises were published upon this subject, and, though superseded by more recent discoveries and improvements, yet they are interesting evidence that the importance of dental surgery was duly appreciated.

Since that date, many eminent men have devoted their pens and their energies to the investigation of the anatomy, physiology and pathology of the dental organs, and the light of science now shines where darkness and empiricism formerly prevailed.

Within the last quarter of a century rapid strides have been made in the elevation of the standard of the dental profession, and in its proper appreciation by the mass of the community; and now, as the study of it is cultivated upon liberal principles, as a science, we may look forward to the future with a well-grounded hope for its still greater advancement and appreciation.

Within this time, most valuable improvements and discoveries have been made in the operative and mechanical departments; yet this alone could not have produced this happy change; this state of affairs may be mainly attributed to the position the profession has placed itself in, by uniting together in societies for the free interchange of sentiment, the establishment of dental colleges for the more perfect education of those who desire to practice, and a diffusion of dental literature.

A common error prevails, even in this day, that to be a dentist, it is only necessary to be able to extract a tooth, fill a cavity in one, and solder an artificial one on a plate. Yet to practice dentistry skillfully in its details, to be truly what he professes, requires a much more comprehensive knowledge; he must be versed in anatomy, physiology, pathology, therapeutics, chemistry and metallurgy.

The natural inclination and talent of some men enable them to excel in one branch, some in another, and some again in another, so, by a free interchange of knowledge, all are mutually benefitted.

This points out to you, gentlemen, the proper course for your observance in your onward career; you have taken the proper initiatory step, by studiously educating yourselves in a dental college, and now, when you go forth to take the station to which you are justly entitled, connect yourselves with some district dental society; if none exists where you are located, bestir yourselves to form one. These local societies or associations, being brought together under one general head, or representation of all, will concentrate the united wisdom and experience of the whole, which, in return, will be reflected back to the benefit of each individual member, and thereby elevate our profession. This is a duty you owe to yourselves, to dental science, and more especially to your patients, who confidently place themselves under your charge, and it is your bounden duty that that confidence shall not be misplaced. Ever remember that, in the onward march of science, he who halts retrogrades.

In your intercourse with those who may seek advice or relief by your counsel or aid, be courteous, kind and gentle; soothe the timid, with the



assurance that you will give no unnecessary pain; deceive no one, more especially a child, as your words and acts will be engraved upon its simple and confiding heart as a lasting record for or against you. Let your words be true words. Let not the entreaties, or the timidity of your patients, or pecuniary remuneration, ever induce you to perform any operation at variance with your clear convictions of duty.

And now, in taking your station in the body politic, do not isolate yourselves, nor allow the accumulation of wealth to become a ruling principle. It is truly written, "the laborer is worthy of his hire," and, "he that provideth not for his own household is worse than an infidel." But also remember that we are not such independent beings that we can disregard the claims for aid and sympathy of those around us, as the day and hour may come, and we know not how soon, when we shall claim such aid and sympathy from others.

We all call upon the great supreme Being as our father, and hence we acknowledge our common brotherhood in the family of mankind, and in our pursuits of life, for the purpose of gain or pleasure, we should never forget our duty to our fellow-man and brother. This great Being has given us certain immutable laws for our observance, for our individual and the common good, which cannot be disregarded or disobeyed, either by men or nations, without incurring a penalty. Look at the avaricious man, he may, and most probably will, accumulate the coveted wealth by sacrificing his principles, by oppressing the poor and needy, and in old age will cling to his treasured idol, devoid of the friendship and sympathy of any to cheer his declining years. Like a barren tree, offering no fruit, with no one to water its roots—he ends his miserable existence, leaving no trace of the good that he has done, and departs regretted by none. And again, he who becomes a slave to his appetites, ruins his health, impoverishes his substance, and dies a premature death.

True happiness and contentment, which all men strive for, come, not from the indulgence of our appetites, the accumulation of wealth, or its ostentatious display. It is not indigenous to the gorgeous palace, or the humble cot, wealth cannot purchase it, the absence of wealth cannot deprive us of it, but it springs from a higher and nobler source—the conviction of our having done our duty to our fellow-man and to God.

History pictures the rise, progress, prosperity and downfall of nations. They, too, have their days of usefulness, and having performed their mission, or having disregarded that true law essential to their being, close their career and are succeeded by others. I trust this will not be the fate of ours. In its early days, our forefathers struggled long and successfully to establish a government founded upon equal rights and human

justice. Upon this basis, from its humble beginning, our nation increased in strength and might to be surpassed by none upon the face of the globe. Blessed with the most perfect government, a varied and congenial climate, a most fruitful and productive country, the asylum for the oppressed of all nations. Yet, in the midst of all this prosperity and greatness, the demon of fratricidal war was let loose among us; the hand of brother was raised against brother, father against son, and son against father; struggling for existence, our nation is bleeding at every pore. But there is still hope, and now, after a long period of storm and desolation, a ray of light breaks in upon us, and, I trust, in the providence of God this dark cloud is passing away, and we shall come out of this ordeal as gold from the refiner's fire, and that the principles of our government, based upon human rights and justice, may strike deep their roots, and spread wide their towering branches, until the whole human race may repose beneath their shade.

The integrity and efficiency of a community or a nation, depends upon the purity of its integral parts. This self-evident fact shows us that a responsibility rests upon each and every one of its members, and that each and every one must perform his duty to ensure the perfection of the whole, all must labor for the common good, none stand listless or idle, fearing lest his feeble efforts will be lost, but they will be like the pebble dropped into a placid lake, causing wave to succeed encircling wave, until they reach its remotest borders.

And now, gentlemen, in bidding you adieu, I tender you my heartfelt wishes, that your days may be long and prosperous, that your career of duty, professionally and as citizens, wherever you may be placed, will ever be of an exalted character. And when the scene closes, as the summer cloud in the western horizon is gilded by the rays of the setting sun, so in the setting sun of your lives, when the panorama of the past flits before you, may the visions of the future be gilded by the bright emanations from a better world.

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The ceremonies of the evening were closed by the performance of the National airs by the orchestra, at the conclusion of which the audience were dismissed by benediction.

Thus ended another of those annual gatherings that mark an era in the life history of each student. While the hour has its prospective hopes and fears, it is to all, teachers and students alike, one freighted with sadness. The routine of daily study together is over. In the great busy world conflicting duties will separate many of them forever. The hurried shake of the hand, the cheerful good-bye, and the session of 1864-5 has passed into memory.

## A LITTLE THING.

BY C. A. MILBANK, D. D. S.

When considering our profession in its relation to the public, it is most deplorable to reflect upon the mortal dread and terror with which it is regarded by so many. This dread all will admit is much more to their detriment than to ours. That we give pain, sometimes severe pain, is not to be denied, neither can it be denied that this unmanly fear is cause for a vast amount of unnecessary suffering. Many a timid person puts off the dreaded day till he comes to us at last with his face so swollen that his own friends can scarcely recognize him. For such a poor coward what can be done but to at once relieve him of his torment, and at the same time despoil him of that which, by the exercise of a little care and courage at the proper time, might have remained to him a blessing, and never have given cause or excuse for the opposite. It is a matter of serious regret to our profession that so few can enter a house labeled "Dentist," without a shiver. That this is true, "'tis pity and pity 'tis, 'tis true," and more pity 'tis that we can do so little to allay this fear; for as yet, to the attainment of perfect work, pain must sometimes be given and endured. But having a nervous, timid patient, it is not well to make a display of instruments. We have seen an operator stand before his patient, for whom he was about to extract, and with all the coolness imaginable, wrap a napkin around the handle of his forceps as if preparing for a most tremendous exertion, and meanwhile he bore a most self-satisfied air, smiling, cheerful and confident as the Benecia Boy after the tenth round.

We remember, *most distinctly*, the case of a child, who had made up his mind to have a tooth out, but who suddenly changed his determination upon seeing the Doctor pick up the largest pair of forceps that were upon the table. Once, while in a friend's office, a poor boy came in to be rid of a troublesome grinder. The Doctor, not being quite ready to attend to him, enlivened the time by telling a story of a rough old friend of his who, when about to extract for a young lady, was asked by the fair trembler, "Doctor, will it hurt?" "Hurt," said he, turning back his cuff, "Hurt; yes, it will hurt like h——l." That is a hard story, but it is an "o'er true tale told as it was told to me." It is all very well, doubtless, to go about a disagreeable operation with a certain sangfroid, and even to make light of it, for the purpose of giving confidence to the patient; but when this verges upon hardheartedness, the patient is sure to see it, to the detriment of the operator. This little thing is of importance, and though remissness is more often the result of thoughtlessness than hardheartedness, yet the effect is the same. It is much better to

bear the small inconvenience of the bare forcep handle than to make a display before the patient.

NEW LONDON.

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### AMALGAM.

BY A. T. JOHNSON.

For several years I have read with interest the discussions that have taken place at the Dental Conventions and Associations. Among the various subjects discussed, the use of amalgam, for filling teeth has, at times, occupied a prominent place: many object to its use, while it has strenuous advocates in its favor. Some object to its use in toto, saying, that any tooth that can be, or is worth preserving, should be filled with gold, to the exclusion of every other material.

While I deprecate the use of anything but gold, for filling front teeth, I would ask, what shall we do with the molars and bicuspsids of a very large class of individuals, whose means will not permit them to pay the price of a gold plug; particularly when the cavities are of large size, and the charge, per plug, could not be less than \$5, and upwards, even at the old quotation of gold. Shall we turn them away in their inability to pay the price demanded for gold, telling them that it is the only safe and reliable preservative of carious teeth, especially when, in every community, thousands of instances can be cited, of teeth that have been filled 15 or 20 years with other material, and are still in a good state of preservation; which, to say the least, is a tolerable argument in their favor.

Notwithstanding all that has been said against the use of amalgam, about its producing salivation, &c., &c., it is extensively used by a large majority of the profession; a portion of whom, at least, occupy a high rank as practitioners.

The question then arises, which of the various compositions for amalgam that have been offered to the profession, is the best. Having been in practice between 19 and 20 years, and during that period having made thorough trial of many preparations, I have never, as yet, found any that will compare favorably with the amalgam prepared by Dr. A. Lawrence, of this city. Having used it for several years, I find it uniform in its results, neither expanding or contracting, producing no discoloration of the teeth, (if properly used;) and in many cases, no change of color on the surface of the filling.

One little item in passing is worthy of notice, which falsifies the old proverb, "A prophet is not without honor, save in his own country;" in the fact, that every member of the profession in this city, is in the daily use of it. The demand is increasing largely, I learn, which is due to its

good qualities, as it is not extensively advertised. From personal knowledge, I know that the inventor and proprietor supervises the preparation of his amalgam from the incipient stages, until it is reduced to powder.

Having used this amalgam for several years, with the happiest results, and having adopted a method of using it, particularly in the finishing of the filling, that in some respects may be original; and thinking, perhaps, that a description of my manner of so doing might not be unacceptable to those of the profession who use, or may use this amalgam, I will state the method in as brief and explicit language as possible.

After the cavity or cavities to be filled are excavated, I put a sufficient quantity of amalgam in a small mortar, add quicksilver, triturate well with pestle, then fill the mortar partially full of alcohol, and rub the paste with the pestle thoroughly. If the alcohol is discolored, pour it off, and put in more, until no discoloration is apparent. Then put the paste in linen, or cotton cloth, press out the superfluous quicksilver, *rub dry*, and it is ready for use. In filling crown cavities, I pack them more than full, wait a short time for it to harden; in the meantime, pouring a few drops of a preparation called "sozodont," (which acts as a lubricator,) into a tumbler of soft water. I then take a small pellet of fine cotton in the tweezers, wet the same in the contents of the tumbler, touch it to powdered pumice stone, and then pass it lightly backwards and forwards across the filling. I do this at intervals, (using more strength as it hardens,) sometimes with pumice, and at others without; the result is, a beautiful filling, flush with and about as smooth as the enamel. For approximal and buccal cavities, I use for packing the filling, an instrument similar in shape to a flat burnisher, but much thinner, the end and edges being sharp enough to shave off the surplus material. I then wet the end of a thin, wedge-shaped stick, touch it to pumice, and pass it gently between the teeth; after which, I take a thin wisp of cotton, twisted slightly, or a bit of narrow tape, wet the same, and add pumice, and pass it over the surface of the filling. I do this at intervals, and the result is, a filling satisfactory both to the operator and patient. It requires more time than the usual manner of finishing such fillings with a burnisher; but, in my estimation, the time is well spent, most certainly as far as the patient is concerned, as well as satisfaction to the operator, in the pleasing results of his manipulations.

Trusting that I may have uttered no treason against the art preservative of the masticating organs, in the above communication, I offer it for the consideration of your readers, if you should deem it worthy a place in the pages of your journal. Hoping that a perusal of the same may, at least, be productive of no harm.

LOWELL, March, 1865.

## PROFESSIONAL EDUCATION.

BY T. L. BUCKINGHAM, D. D. S.

The following extract is taken from the *Dental Review*, a most excellent quarterly Journal published in London.

“Considering that only a few years have passed since the practitioners of Dental Surgery commenced their praiseworthy efforts to elevate the standard of the Profession, it is surprising that so much has been accomplished in England. The first agitation, the following separation, and final union of active members of our calling have actually produced a state of things in advance of any country in the world, not excepting America. In the latter country, it is true, a curriculum of study had been marked out for the aspirant to professional distinction for a period many years anterior to the Dental movement in Great Britain; but, with every desire to give credit to the examinations of the several licensed Dental Colleges in America, we fear that the number of these institutions tends to thwart the very object for which they were established, and that, in consequence, the standard of professional education, is tending downward rather than upward. Competition is all very well up to a certain point, but in the matter of Dental Colleges in America it is carried to excess; and the legalized institution offering easy means towards obtaining the D. D. S. degree is more likely to obtain candidates than one which confers the same degree at greater cost of time, trouble and expense. Nevertheless, the Profession in America is justly entitled to praise for the spirit it has long possessed, and still possesses; and we trust a like spirit will permeate the British dentists; but, having deliberately acknowledged the College of Surgeons as our head, we cannot but feel that there is greater security than if there were a chance of competition in examinations in so small, comparatively speaking, a body as ours. It was either one thing or another—a single independent college or a union with the College of Surgeons. The Profession, after ample opportunity of discussion, chose the latter; and to it let us loyally adhere.”

Is the standard of dental education tending downwards rather than upwards? This is a question that should interest every intelligent dentist. We do not intend to argue the point whether a student can be as well qualified in a private office to practice, as he can in a dental college; the time for such arguments is past, and settled, we think, in favor of colleges; but whether the multiplicity of colleges tend to raise or lower “the standard of professional education” is now the question. While there were but three dental colleges in the United States—the Baltimore, Ohio and Pennsylvania—there is no question but they tended to strengthen each other, and perhaps several others, located in various parts of the country, might have been a benefit. But when two are located very near to each other,

so that the students, before they enter, can go from one to the other, and see with which they can make the easiest terms, it becomes a question whether they are not rather an injury than a benefit.

If we refer to the medical colleges, some information may probably be derived, and we refer to them more freely as they have been held up as examples by those who advocate the increased number of dental colleges. But we do not admit that one is a fair representation of the other. No person attempts to practice medicine in this country without a diploma—the profession would not recognize him, nor would the community encourage him.

What is the case with dentists? The community does not require them to have a diploma, nor do those who have graduated refuse to associate with those who do not; they are admitted to all our conventions and associations as readily without as they are with a diploma, so that there is no distinction between those who attend colleges and those who do not. But, waiving the distinctions between the two professions, we will accept them as fair representatives of each other, and confine ourselves to the colleges of our own city, excluding the Eclectic, Homœopathic and Female Colleges, as they have peculiarities which cannot be fairly brought in.

The first college established in this city was the University of Pennsylvania. It was not only the first, but was, for a long time, the only medical college in this country. It has just held its one hundred and fifteenth commencement; for over sixty years it has occupied a magnificent building; it has the largest medical museum in the country, and all the appliances necessary for teaching, with a very large fund invested for its benefit.

“Such has been the prosperity of this medical institution, the first founded in our country, that from the most accurate calculations that can be made up to 1830, it is computed that between seven and eight thousand young men have received instruction within its walls since its establishment, and from this source the remotest parts of our Union have been furnished with learned physicians, who are ornaments to their profession.” The class numbered yearly from three to six hundred students. I have been particular in stating the advantages of this school for reasons which will be given hereafter.

The second college we refer to is the Jefferson Medical College, which was opened in November of 1825. The faculty was composed of men of reputation and perseverance. It struggled along for fifteen years before any one could tell whether it would live or not. It has now, by the perseverance of the faculty, attained a position equal to the first in everything except age. But now let us notice what effect these colleges have

had on each other. The first, until recently, held its sessions from nearly the first of October to April, or nearly six months, while the sessions at the Jefferson commenced about the same time and closed by the first of March. The fees were also much higher at the University than they were at the Jefferson. The University has since reduced their fees and shortened the term to correspond with the Jefferson. Why was this change made? Was six months longer than was necessary to teach medicine, or was it because the one that offered the shortest term and the lowest fees began to have as many or more students than the other. Certainly the session was not too long, for the Professors had to condense their lectures to get them into the course. The students were compelled to attend six or seven lectures each day, or, what was equivalent, attend the Hospital or a clinic, and also the examinations and dissections at night, so that there was little or no time left for reading and reviewing the lectures. If the sessions had been extended to eight months, instead of shortened, the student would have been much benefitted.

We have selected these two colleges, that some delight to hold up as examples, to show that where two schools are located near each other, the one offering the greatest inducements, either in time or money, will compel the other to come to its standard, providing they are both of equal reputation.

But what has become of the four or five other colleges that have been established here? If the increased number of colleges is a benefit to each other by attracting and increasing the number of students, as some persons contend they do, surely in a city where there are nearly one thousand medical students, who pay at least one hundred thousand dollars annually for medical instruction, more than two colleges should be sustained.

But they were not sustained; the class was often so small that it did not pay the expense of teaching. Some of them closed their doors honorably; while others struggled on for a number of years resorting to such means to attract students as rendered them a reproach to the name of colleges, and some others even went so far as to sell diplomas to persons who had never heard a lecture in their rooms. It would not take a lengthy argument to prove that such colleges do not tend to elevate a profession. We will not now attempt to compare the dental colleges that are now in operation, with each other, but leave that to some person who has no connection with them. Still we must say that the standard of dental education in them is rather tending downwards than upwards. Cases could be pointed to where students have graduated in two months' instruction; and, in other cases, they have entered on the express condition that they should graduate at the next commencement.



The number of medical students attending colleges in this city, in 1862, was nine hundred and eighty-two, (982.)

The number of dental students, the same year attending college, was forty-one, (41.)

If nine hundred and eighty-two students would not sustain more than two medical colleges, what inducements could there have been to establish two dental schools? Certainly it could not have been that the number of students required it. It may have been that those who wanted to teach, required some place to show their talents; or some one who could not rule would not submit to be governed, or for some other cause not yet made public. But let the object have been what it would, we think the profession, if they have thought on the subject, must see that it was not that the two colleges should work together harmoniously and act and re-act upon each other so that one might be a benefit to the other.

Let the standard of dental education in the colleges tend upwards or downwards, we are satisfied, in the profession at large, it is on the advance. The dental periodicals, the frequent meeting together of the members, and at these meetings the desire to show and explain every mode of operating; the comparing of operations as they come into the office, and last, though not least, the knowledge of the public on dental operations, all tend to advance the profession. We think it can safely be said that the profession stands higher now than it has at any other period.

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### CAOUTCHOUC.

ITS HISTORY, PROPERTIES; ITS COMBINATIONS FORMING HARD RUBBER, AND THE MANNER OF WORKING IT FOR DENTAL PURPOSES.

BY E. WILDMAN, M. D., D. D. S.

CONTINUED FROM PAGE 103, VOL. II.

In addition to the experiments given to ascertain the amount of fixed matter in rubber offered for dental purposes, I will add two more.

*Eighth.*—A specimen of brown or uncolored rubber, manufactured by American H. R. Company, yielded four per cent. of dark cinder.

*Ninth.*—A specimen of my own make, composed of fine Para caoutchouc two parts, and sulphur one, (formula A,) produced three per cent. of dark cinder.

These results, compared with experiment *sixth*, page 100, are so nearly similar that they make it evident that the American H. R. Company's rubber is not loaded with any fixed matter; the small disparity in the results may arise from the different qualities, or state of purity of the caoutchouc used.

There can be no earthy matter, oxide of zinc or oxide of lead in the specimens of the Company's rubber that were examined, for had there been

earthy matter added, it would have produced more than five per cent. of fixed residue; oxide of zinc not being volatile, would have produced a similar result; oxide of lead would have shown itself by its reduction, and also a greater weight of residue.

These experiments corroborate the position taken in the calculation of the value of pink rubber, given in the table on page 103. Many speculations as to the composition of red rubber, and the reticence of the manufacturers of it, led me to make the foregoing experiments, to throw some light upon the subject; and now, after repeated trials, I have found that the mixture, made according to formula D, (page 102,) gives results in working, texture, and external appearance, so near the American H. R. Company's rubber, that if not identical with this formula, approximates very closely to it.

As to the propriety of introducing into the mouth rubber colored with sulphuret of mercury, I shall reserve my remarks until at the conclusion of this article; in the meanwhile, I would advise those who have seen injurious effects resulting from its use to discard it; to those who are in doubt upon this subject, let them consult the best medical authorities upon the effect of this substance upon the animal economy, and ascertain why its internal use has been discarded by medical practitioners; also, its volatility at the temperature of the mouth, and the extent of the abrasion of a piece of vulcanite work in a given time, say one year's wear. This investigation will give data from which the doubting can satisfy themselves as to the fitness of rubber colored with vermilion for dental purposes.

This brings to a close for the present the subject of rubber compositions, and next in order will be taken up the manner of working them. Owing to the press of matter for this number, this has been unavoidably postponed until the next.

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### TO STRENGTHEN MODELS FOR VULCANITE WORK.

I have frequently been very greatly benefitted by a single thought or suggestion gleaned from the *TIMES*, or some other dental journal; therefore, by your permission, I will give to the profession, through the columns of your excellent journal, an expedient that suggested itself to my mind, and which has been of great importance to me. Whether others have resorted to the same I cannot say. In making the vulcanite models, they are frequently, along the anterior portion, so thin as to be insufficient to sustain the pressure necessarily brought upon them in closing the flask. The result is that the model breaks, and the work is spoiled. I have succeeded in overcoming that difficulty by the

following expedient. After taking the impression, if I observe points liable to the above difficulty, I take pieces of wire, about three-quarters of an inch in length, file them to a very fine point, and stick a sufficient number of them in the impression, at the points liable to break, then proceed to make the model as usual. The points of the wires will be found protruding above the surface of the model, and may be dressed off with a file. I am well pleased with the DENTAL TIMES.

ISRAEL WILLIAMS.

NEW PHILADELPHIA, Ohio.

### A CASE OF ALVEOLAR ABSCESS.

BY S. C. RICHARDSON, D. D. S., MATTOON, ILLINOIS.

Mr. G., a native of East Tennessee, aged twenty-six years, (complexion fair, light hair and blue eyes,) applied to me, September 24th, 1864, complaining of a discharge, which had been taking place below and one inch anterior to the right tuberosity of the superior maxillary bone, for a period of eleven months, at irregular periods. Upon examination, I found the roots of the first and second right superior molars remaining. Suspected that they had some connection with the case, and advised their extraction. He declined for a few weeks, but returned, complaining of a slight soreness in them whenever the pus caused a tenseness of the abscess. Stated that he had been treated for scrofula; but one physician of several who examined the case, intimated that the roots might have something to do in producing the trouble. I removed the roots, and in three weeks the discharge entirely ceased, leaving but a large cicatrix to mark its former locality. The patient called on me to-day, (March 11th,) and I see no indications of a recurrence of the abscess.

### CEMENT FOR PLASTER CASTS.

BY ALEX. O'CALLAGHAN, D. D. S., PHILADELPHIA.

As we are all liable through accident to break one or more teeth off of our plaster casts, and sometimes to break the casts themselves, I think it is an object with the dentist to have some article on hand in the laboratory with which to repair them. I have lately tried the "liquid silix," and find it preferable to any other cement. It makes a very strong and most perfect union of the broken parts. I am satisfied, that after one trial no dentist will be without it. My method is to moisten the broken parts with the preparation, and to press them firmly together for a minute or so, then to place the cast on the stove for about half an hour.

## Editorial.

---

IN THE editorial department of the December number of the *Dental Register of the West*, (which has been received since our last number was issued,) is published the "Reminiscence—Valedictory" of Dr. George Watt, who, "nearly nine years ago became editorially connected with" that periodical. We are sorry to see that the Doctor has found it necessary to make this change. But that there must have been good reasons for doing so is evident from the tone of his valedictory, in which he says, "Taking up the editorial pen was the occasion of much anxiety; laying it down again stirs the 'fount of feeling' still deeper. But now, as then, the matter has been carefully weighed before the responsibility is taken. Does the reader doubt it? Then listen to what is involved in the step. Personally, to the writer is lost a great portion of his interest in the profession, and a much greater portion of the profession's interest in him. Persons who seldom meet and converse together cease to be warmly interested in each other. The monthly conversation of the *Register* with its readers no longer forms a tie between the writer and his brethern. Now they are brethren of a scattered household, and he is to them as a stranger." We can scarce think it can be as he says in one part of the above quotation, that he has "lost a great portion of his interest in the profession," and we certainly know that the other part of the sentence is not correct, "a much greater portion of the profession's interest in him," for there was no writer in the dental profession whose articles were read with more interest than his, and although sometimes they were quite caustic, (as we can bear testimony more than once,) still they were like applying the *actual* cautery to an indolent ulcer—they either stimulated the parts to a more vigorous action, or they caused them to die and slough off; in either case the body was benefitted. But as the Doctor has only put off the editorial harness, we hope that he will continue to contribute to the journals, for we cannot afford to loose so able a writer. He must remember that the time allotted to man to do his work in is "three score and ten years," and he has over twenty of that time to make up. But, whether the Doctor contributes to the dental literature or remains silent, he will always be gratefully remembered, for socially he was one of the pleasantest companions we ever met with.

T. L. B.

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WE are sure that the readers of the DENTAL TIMES will regret to hear, that Prof. C. N. PEIRCE has found it necessary to resign his active duties in the Faculty that edit this Journal, on account of the amount of business requiring his personal attention. He has been compelled to give up his position in the college; but although he retires from the active duties

in the Faculty, still he will take part in their proceedings. The Trustees of the College, in consideration of the valuable services rendered while in the Faculty, unanimously elected him Emeritus Professor of Operative Dentistry.

The chair vacated by the resignation of Prof. PEIRCE, will hereafter be filled by Dr. JAMES TRUMAN, who has for a number of years been Demonstrator of Operative Dentistry, one of the most responsible positions in the college, as the occupant is expected to demonstrate in practice the principle taught by the various chairs. He is every day called upon to diagnose the most obscure cases, as well as to assist in all difficult operations; and these he must do at a moment's notice, surrounded by the whole class. How well he has performed these arduous duties, we can confidently refer to the different classes that have had the benefit of his instructions.

T. L. B.

---

DONATIONS TO COLLEGE MUSEUM.—From Dr. George B. Snow, of Buffalo, N. Y., a blow-pipe and burner of novel construction. It is so arranged that the atmospheric air combines with the gas before the current of air from the blow-pipe strikes the gas, and thereby ensures complete combustion, consequently evolves a great amount of heat. It is a very ingenious and effective instrument. We cannot give an intelligible description of it without an engraving.

From Dr. John Q. Birkey, of Philadelphia, a dens sapientiæ, with abnormal roots; also, human teeth from a necklace of a Cannibal Chief.

E. W.

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### PUBLISHERS' NOTICE.

The present number closes the second volume of the DENTAL TIMES. The simple announcement of this fact will suggest to our friends the advantage of an early renewal of their subscriptions. The general character of the journal will be continued as heretofore, but we expect to make such improvements in the next volume as may have been suggested by past experience. We have endeavored to make the TIMES worthy a place in the library of every practitioner of dentistry, and to this end have earnestly requested articles from any one having an original thought to communicate. We return our thanks to those who have given us valuable aid in this respect in the past, and hope to have the circle of contributors enlarged in succeeding numbers.

We would call attention to the important changes in the Faculty of the College, made necessary by the retirement of Prof. C. N. Peirce. All communications for this journal, or relating to the business of the College, should be addressed hereafter to

DR. T. L. BUCKINGHAM, Dean, 243 North Ninth Street, Phila.

# PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE TENTH ANNUAL SESSION, 1865-'66.



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**The Lectures to the Regular Course will commence on the  
1st of November and continue until the 1st of March.**

During the last two weeks of October, preliminary Lectures are delivered,  
one each day.

The Rooms for Operative and Mechanical Dentistry are open from the  
1st of October and throughout the session, under the supervision of the  
Demonstrators.

The Dissecting Room, under the superintendence of the Professor of  
Anatomy and Physiology, is open during the session.

<b>Fees for the Course, (Demonstrators' Ticket included,)</b>	<b>-</b>	<b>\$100</b>
<b>Matriculation, (paid but once,)</b>	<b>- - - -</b>	<b>5</b>
<b>Diploma Fee,</b>	<b>- - - -</b>	<b>30</b>

**T. L. BUCKINGHAM, Dean,**

**C. P. REESS, Janitor.**

**243 North Ninth St., Philadelphia.**

**P. S.—Board may be had at from \$3.50 to \$6.00 per week.**

## PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Tenth Annual Session, 1865-'66.

The tenth annual session of the Pennsylvania College of Dental Surgery will commence on the first of November, and continue until the first of March. Preliminary lectures will, however, be delivered each day during the latter half of the month of October. The Dispensary and Laboratory of the College will also be open from that time, where ample opportunities will be afforded for the prosecution of the practical part of the profession under the daily supervision of the Demonstrators, who are gentlemen of known integrity and thorough capability. During October, as well as the entire session, a clinical lecture will be delivered, and operations performed by one of the Professors every Saturday afternoon.

The course is so arranged that fifteen lectures are delivered each week, on the various branches taught in the school. A synopsis of the manner in which each department is treated will be found under the head of the different chairs.

These lectures occupy about the average time of three hours each day. In addition, four hours are daily spent by the student in actual practice. With this object in view, the operating rooms are furnished with twenty chairs, so arranged as to command the best light, and all the appliances necessary for comfort and use. To these chairs the students are assigned in classes, and certain hours are fixed for each member of the class to operate.

Each student is required to provide his own instruments, (except those for extracting,) and to operate with them. He is expected to keep them in perfect order, and for that purpose is provided with a table in which they can be locked up when not in use. As the operations performed at the College are entirely gratuitous, a superabundance of patients invariably present themselves.

In the mechanical department every process known in the profession, which has any value to the mechanical dentist, is fully taught; and receipts of valuable compounds are freely imparted. All the conveniences are at hand in the Laboratory for the preparation of metals, manufacture of teeth, (single and in blocks,) mounting, etc.; and the student is required to go through all the necessary manipulations connected with the insertion of artificial teeth—from taking the impression to the thorough construction of the denture, and proper adjustment of it in the mouth of the patient.



In addition to the facilities afforded by the College for a thorough course of instruction in the theory and practice of Dentistry, the celebrated hospitals and clinics of the city constantly enable the student to witness various important surgical operations which are highly interesting and instructive. The medical and surgical clinics of the Blockley Hospital, in particular, one of the largest eleemosynary establishments in the world, are open to Medical and Dental students, free of charge. The staff of this institution is composed of some of the most eminent physicians and surgeons of Philadelphia.

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## COURSE OF LECTURES.

---

### CHEMISTRY AND METALLURGY.

The course of instruction from this chair will commence with the consideration of the imponderable substances.

The laws that govern the imponderable bodies will next claim attention, with some notice of symbols or chemical notations. Individual elements, and the compounds resulting from their combinations, will then be considered. Organic chemistry will receive its full share of attention.

The course will be illustrated by diagrams and such experiments as can be performed before the class.

---

### DENTAL PHYSIOLOGY AND OPERATIVE DENTISTRY.

The lectures in this department will embrace the Physiological Anatomy of the teeth, general and microscopical, in addition to a minute and careful description of the various operations performed by the dental practitioner.

The microscope, models and diagrams, will be employed in illustration.

At the Clinic the incumbent of this chair will also demonstrate before the class the various operations described in his course of lectures.

---

### MECHANICAL DENTISTRY.

The instruction from this chair will embrace the entire range of manipulations legitimately connected with the laboratory, arranged in two divisions—Mechanical Dentistry proper, and that to which has been applied the appellation of the Plastic department.

I. *Mechanical dentistry proper* will include everything appertaining to the construction of dental substitutes, passing through the different stages of preparation, from taking the impression, to the completion and proper adjustment of the case in the mouth, conjointly with features, expression of countenance, enunciation, etc. It will likewise embrace the metallurgic treatment of the various metals employed, the preparation of plate and wire, the alloying of gold, together with the *alloys* used, as well as those designated as solders.

II. This division will comprise all that appropriately belongs to the manufacture of porcelain or mineral teeth—single teeth, block-work, continuous gum-work, vulcanite, etc. The materials, their preparation, compounds and uses, will be specially regarded.

All new inventions, modifications, and improvements, in this branch of the art, will in place receive due attention and investigation.

---

## PRINCIPLES OF DENTAL SURGERY AND THERAPEUTICS.

The lectures delivered from this chair will embrace General Pathology, Dental Pathology, the Pathological Relations of the Teeth to other parts of the System, together with a minute description of all special diseases that have any relation to Dental Surgery, or of interest to the Dentist.

They will also include a careful examination of therapeutic agents and their general application. Their indications in the medical and surgical treatment of diseases of the mouth, both idiopathic and symptomatic, will be fully illustrated, and also the general hygienic rules and principles which come within the province of the practitioner.

---

## ANATOMY AND PHYSIOLOGY.

The instruction in this department will embrace a plain and comprehensive view of the structure and functions of the Human Economy. The valuable anatomical preparations of the incumbent of this chair, (consisting of Papier Mache manikins, models in wood, drawings, wet and dry preparations,) will enable him to fully illustrate his course. With the same object, vivisections on the lower animals will also be employed.

The special relations of this branch to the wants of the dentist will be kept steadily in view, and such descriptions of the natural history, microscopical structure, connections, &c., of the teeth, as their importance demands, will be given.

The great facilities for the study of practical anatomy, to be found in the city of Philadelphia, obviate the necessity of providing a dissecting-

room in the College. For the usual fee of \$10, the student can have access to one of several well-ordered and well-supplied dissecting-rooms.

---

### REGULATIONS.

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The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College; five years' practice, inclusive of the term of pupilage, will also be considered equivalent to the first course of lectures. The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done, at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees; and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

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### TEXT BOOKS AND WORKS OF REFERENCE.

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Wilson's, or Leidy's Sharpey & Quains' Anatomy; Carpenter's Physiology, or Dunglison's Human Physiology; United States Dispensatory; Mitchell's Materia Medica; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; C. J. B. Williams' Principles of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Paget's Surgical Pathology, or other standard works on the subject.

VOL. I.

JULY, 1863.

NO. 1.

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THE  
DENTAL TIMES,  
A  
QUARTERLY JOURNAL  
OF  
DENTAL SCIENCE.

EDITED AND PUBLISHED BY

THE FACULTY

OF THE

*Pennsylvania College of Dental Surgery.*

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PHILADELPHIA.

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## TO THE PROFESSION.

In issuing the "DENTAL TIMES," we desire to make it of interest to the mass of practitioners. In furthering this end we would earnestly solicit from our professional friends, communications on any branch of our specialty. Let no one hesitate because they have nothing rare, or of particular interest, nor from the fear of being unable to clothe their ideas in language that will please the most fastidious; give us the facts, and the method, and we will lay them before our readers so that all will understand and many be instructed.

We send the first number of the periodical to all whose names are known to us; those who meet with this notice, and have not received it, will confer a favor by sending their name and address to C. N. Peirce, 501 North Seventh street; also notify us when changing their location, for we desire to obtain, and keep a corrected list, of the dentists in the United States.

The price of the "DENTAL TIMES" is *one dollar per annum, in advance*. Those who inclose the amount with their name and address will be sure to receive it punctually, and without delay. We regret the absence of an article from Professor Forbes, but he is at present with the army in front of Vicksburg, rendering aid to the sick and wounded, therefore has not the time; but the readers of subsequent numbers will have the pleasure of communications from his ready pen.

---

## DENTAL MEETINGS.

The Ninth Annual Session of the American Dental Convention will be held at Saratoga Springs, N. Y., on Tuesday, August 4th, 1863.

The Annual Meeting of the American Dental Association will be held at Philadelphia, on Tuesday, July 28th, 1863.

# OHIO COLLEGE OF DENTAL SURGERY.

## SESSION OF 1863-64.

The regular course of Lectures in this Institution, will commence on the first Monday of November, and close on the 20th of February.

### FACULTY.

JAS. TAYLOR, D. D. S., (171 Race Street,) Institutes of Dental Science.

J. TAFT, D. D. S., (172 Race Street,) Operative Dentistry.

GEO. EDWIN JONES, M. D., (431 West Seventh St.,) Anatomy and Physiology.

H. B. SMITH, D. D. S., (18 West Fourth Street,) Mechanical Dentistry.

H. A. SMITH, D. D. S., (118 West Sixth Street,) Chemistry and Metallurgy.

E. COLLINS, D. D. S., Adjunct Prof. of Operative and Mechanical Dentistry.

**Text Books.**—Gray's and Williams' Anatomy; Carpenter's, Todd's and Boman's Physiology; Williams' Pathology; Fown's, Turner's, Graham's, or Brand and Taylor's Chemistry; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Harris' Principles and Practice of Dental Science.

### Terms of Admission.

Tickets must be procured at the beginning of the session.

Tickets for the course, - - \$100 00

Matriculation Fee, - - - 5 00

Diploma Fee, - - - - 30 00

### Terms of Graduation.

Two courses with a dental pupillage.

Four years reputable practice will be received as equal to one course.

An acceptable thesis upon a subject on Dental Science.

Must possess a good moral character, and be twenty-one years old.

For further information, address

J. TAYLOR, *Dean*, or

J. TAFT, *Secretary*.

---

# TO DENTISTS.

---

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AND  
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## TESTIMONIALS.

---

This is to certify that I have used the various and most of the different manufacturers' teeth for the last eight years, and now give to Johnson & Lund's the choice; deeming them as combining the most desirable qualities looked for in artificial teeth; such as NATURALNESS OF COLOR, SHAPE, SYMMETRY and BEAUTY OF ARRANGEMENT, COMELINESS OF EXPRESSION in the mouth, and STRENGTH and FIRMNESS for use.

R. WALKER, Owego, New York.

---

MESSES. JOHNSON & LUND:—

Gents:—I have had an opportunity of using some of your beautiful teeth, and can pronounce them *Excelsior*. They stand the fire well, and are in every respect worthy.

S. J. BRACKETT, St. Louis, Mo.

---

Having within the last thirteen years used teeth from nearly every establishment in the Union, I have no hesitation in saying that Johnson & Lund's teeth, as lately improved, present a greater combination of desirable qualities than do those of any other one establishment; and I cheerfully recommend them to the profession as a *decidedly superior article*.

F. O. HYATT, Cortlandville, New York.

---

If there is such a thing as *perfection* in the manufacture of artificial teeth, Johnson & Lund have certainly attained it.

E. J. LARASON, Philadelphia.

---

MESSES. JOHNSON & LUND:—

Gentlemen—Having used your teeth in my practice for the past year, and finding them *SUPERIOR* to all others in *BEAUTY, NATURAL APPEARANCE, and DURABILITY*, I hereby add my humble testimony in their favor.

Yours, respectfully,

B. F. CLARK, Flint, Michigan.

---

I have used Teeth from the different manufacturers for ten years, and have discovered in none those qualities which so nearly approach a desideratum as the productions of Johnson & Lund. Their resemblance to nature in shape, shade and transparency is unsurpassed; and their freedom from brittleness under the hammer, and unequalled endurance under the blow-pipe, show that the proportion of their ingredients effect such a happy combination as to leave little room for improvement in respect to general strength.

S. H. COSTEN, Philadelphia.

---

I use Johnson & Lund's make of Artificial Teeth, and can recommend them as being perfect in every particular; they give *complete satisfaction*, and leave nothing further to be desired.

J. M. BARRETT, Wilkesbarre, Pa.

---

MESSES. JOHNSON & LUND:—

Dear Sirs:—I take pleasure in adding my certificate in favor of your teeth. They are *without a fault*.

A. H. FOWLER, Ithica, New York.

---

MESSES. JOHNSON & LUND:—

Gentlemen—You ask me how I like your teeth. I must say that I prefer them to those of any other manufacturer. The *beautiful shape*, the *life-like* and *natural* shades, and their *strength* under the *blow-pipe* and *hammer*, render them all that the dentist could desire. The perfection you have attained in the manufacture of artificial teeth, deserves the thanks and substantial support of the dental profession. Wishing you success, I remain, Yours, truly,

M. LUKENS LONG, Phila.

---

Having used Johnson & Lund's Teeth to my perfect satisfaction, I would earnestly recommend them to Dentists in search of a superior article, and one that will *always please*.

S. F. TREMAIN, (Of the Firm Tremain Bro.'s,) Rome, N. Y.

---

MESSES. JOHNSON & LUND:—

Having during the past year used five hundred dollars worth of your teeth, we have come to the conclusion to use none other now manufactured.

HOLBROOK, BUTLER & HUNTINGTON.

Watertown, N. Y., March 23, 1863.



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**Philadelphia.**

# **HORATIO G. KERN,**

MANUFACTURER OF

## **SURGICAL & DENTAL INSTRUMENTS, FILES, &C.**

---

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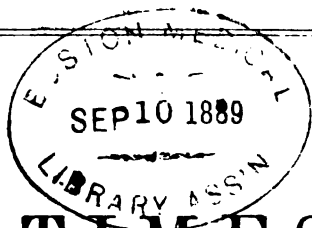
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# DENTAL TIMES,

A

QUARTERLY JOURNAL

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Yours, &c.

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MR. H. G. KERN—*Dear Sir*—The excavators recently manufactured by you have been used with the utmost satisfaction. I can give them an unqualified recommendation. Yours, respectfully,

June 26th, 1863.

GEO. T. BARKER, D. D. S.

MR. H. G. KERN—*Dear Sir*—The last excavators obtained from you are of a very superior quality. I can recommend them as being equal to any I have ever used.

T. L. BUCKINGHAM, D. D. S.

June 25th, 1863.

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A substitute for AMALGAM in filling badly decayed teeth; and used for resetting PIVOT TEETH in badly decayed roots; also for filling over SENSITIVE DENTINE to destroy sensibility, and as a non-conductor of heat, and for many other DENTAL PURPOSES.

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Pamphlets sent, on application, gratis.

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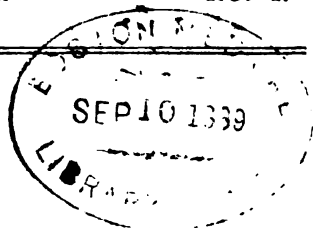
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25 South Sixth Street, above Chestnut, Philadelphia.

VOL. I.

APRIL, 1864.

NO. 4.



THE

# DENTAL TIMES,

A

QUARTERLY JOURNAL

OF

## DENTAL SCIENCE.

EDITED AND PUBLISHED BY

THE FACULTY

OF THE

*Pennsylvania College of Dental Surgery.*

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PHILADELPHIA.

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## TO THE PROFESSION.

In issuing the "DENTAL TIMES," we desire to make it of interest to the mass of practitioners. In furthering this end we would earnestly solicit from our professional friends, communications on any branch of our specialty. Let no one hesitate because they have nothing rare, or of particular interest, nor from the fear of being unable to clothe their ideas in language that will please the most fastidious; give us the facts, and the method, and we will lay them before our readers so that all will understand and many be instructed.

We send the first number of the periodical to all whose names are known to us; those who meet with this notice, and have not received it, will confer a favor by sending their name and address to C. N. Peirce, 501 North Seventh street; also notify us when changing their location, for we desire to obtain, and keep a corrected list, of the dentists in the United States.

The price of the "DENTAL TIMES" is *one dollar per annum, in advance*. Those who inclose the amount with their name and address will be sure to receive it punctually, and without delay.

## REGULATIONS.

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The candidate must be twenty-one years of age. He must have studied under a private preceptor at least two years, including his course of instruction at the College. Attendance on two full courses of lectures in this institution will be required, but satisfactory evidence of having attended one full course of lectures in any respectable dental or medical school, will be considered equivalent to the first course of lectures in this College; five years' practice, inclusive of the term of pupilage, will also be considered equivalent to the first course of lectures. The candidate for graduation must prepare a thesis upon some subject connected with the theory or practice of dentistry. He must treat thoroughly some patient requiring all the usual dental operations, and bring such patient before the Professor of Operative Dentistry. He must, also, take up at least one artificial case, and after it is completed, bring his patient before the Professor of Mechanical Dentistry. He must, also, prepare a specimen case to be deposited in the College collection. The operations must be performed, and the work in the artificial cases done, at the College building. He must also undergo an examination by the Faculty, when, if found qualified, he shall be recommended to the Board of Trustees; and, if approved by them, shall receive the degree of Doctor of Dental Surgery.

---

## TEXT BOOKS AND WORKS OF REFERENCE.

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Wilson's, or Leidy's Sharpey & Quains' Anatomy; Carpenter's Physiology, or Dunglison's Human Physiology; United States Dispensatory; Mitchell's Materia Medica; Fownes' Elements of Chemistry; Regnault's Chemistry; Lehmann's Physiological Chemistry; C. J. B. Williams' Principles of Medicine; Wood's Practice; Tomes' Dental Physiology and Surgery; Harris' Principles and Practice; Taft's Operative Dentistry; Richardson's Mechanical Dentistry; Paget's Surgical Pathology, or other standard works on the subject.

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Number of Patients visiting the Clinic,.....	2302
Number for whom the following operations were performed,.....	1687
Gold Fillings,.....	607
Tin do .....	680
Temporary Fillings,.....	13
Amalgam do .....	6
Treatment and Filling Pulp Cavities,.....	201
Superficial Caries Removed,.....	18
Removal of Salivary Calculi, .....	84
Treatment of Periostitis,.....	37
Do Alveolar Abscess,.....	24
Do Inflammation of the Gums,.....	6
Do Partial Necrosis,.....	16
Do Diseased Antrum,.....	2
Do Irregularities, .....	16
Do Necrosis of Superior Maxilla,.....	1
Extraction of Teeth and Roots, .....	2112
Total,.....	3623

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Whole Sets of Teeth, .....	21
Full Upper Sets, .....	42
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Do Continuous Gum Sets,.....	3
Partial Upper Sets, .....	60
Do Lower Sets,.....	8
Obturator, * .....	3
Teeth Mounted on Metal Plates,.....	517
Do Hard Rubber Base,.....	1130
Whole Number of Gum Teeth,.....	671
Do Plain Teeth,.....	976
Do Teeth Mounted,.....	1647

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The PLASTIC METALLIC FILLING possesses advantages which commend it above every other material but gold for filling teeth, while it can be successfully employed in many cases where gold cannot. By ordinary skill and a little practice it can be introduced with facility, or built out from defective teeth, so as to restore their natural contour. It does not recede from the walls of the cavity upon introduction, nor shrink afterwards. It forms a perfect plug, solid throughout, that effectually excludes air and moisture.

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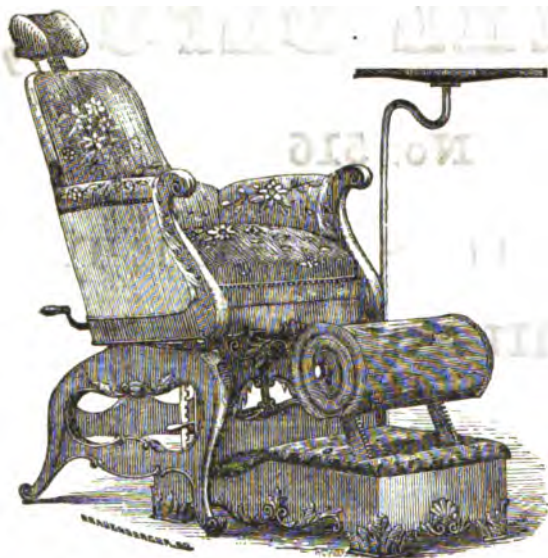
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This is to certify, that I have used the various and most of the different manufacturers' teeth for the last eight years, and now give to Johnson & Lund's the choice; deeming them as combining the most desirable qualities looked for in artificial teeth; such as NATURALNESS OF COLOR, SHAPE, SYMMETRY and BEAUTY OF ARRANGEMENT, COMELINESS OF EXPRESSION in the mouth, and STRENGTH and FIRMNESS for use.

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Gents:—I have had an opportunity of using some of your beautiful teeth, and can pronounce them *Excelsior*. They stand the fire well, and are in every respect worthy.

S. J. BRACKETT, St. Louis, Mo.

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Having within the last thirteen years used teeth from nearly every establishment in the Union, I have no hesitation in saying that Johnson & Lund's teeth, as lately improved, present a greater combination of desirable qualities than do those of any other one establishment; and I cheerfully recommend them to the profession as a *decidedly superior article*.

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If there is such a thing as *perfection* in the manufacture of artificial teeth, Johnson & Lund have certainly attained it.

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MESSRS. JOHNSON & LUND:—

Gentlemen—Having used your teeth in my practice for the past year, and finding them *SUPERIOR* to all others in *BEAUTY, NATURAL APPEARANCE, and DURABILITY*, I hereby add my humble testimony in their favor.

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I have used Teeth from the different manufacturers for ten years, and have discovered in none those qualities which so nearly approach a desideratum as the productions of Johnson & Lund. Their resemblance to nature in shape, shade and transparency is unsurpassed; and their freedom from brittleness under the hammer, and unequalled endurance under the blow-pipe, show that the proportion of their ingredients effect such a happy combination as to leave little room for improvement in respect to general strength.

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I use Johnson & Lund's make of Artificial Teeth, and can recommend them as being perfect in every particular; they give *complete satisfaction*, and leave nothing further to be desired.

J. M. BARRETT, Wilkesbarre, Pa.

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MESSRS. JOHNSON & LUND:—

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A. H. FOWLER, Ithica, New York.

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MESSRS. JOHNSON & LUND:—

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Yours, &c.

C. N. PEIRCE, D. D. S.

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MR. H. G. KERN—*Dear Sir*—The excavators recently manufactured by you have been used with the utmost satisfaction. I can give them an unqualified recommendation. Yours, respectfully,

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One fourth ounce packages, with directions, sent by mail free of postage, on receipt of \$1.

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**POUGHKEEPSIE, N. Y.**

## **HAYES'** HIGH PRESSURE **VULCANIZING OVEN.**

ALSO,

### **New Vulcanizing Boiler.**

Steam Joint secured by means of a Screw Collar and Set Screws. *No Bolts—no Nuts—no Friction on the Rubber Packing.*

These machines Vulcanize in 40 minutes at 320°; make the best quality of work; consume but one fluid ounce of alcohol, and produce no smell of sulphur in the rooms.

### PRICES:

All complete, with furniture —

For one case, copper oven.....\$11 00

For two cases, copper oven..... 12 00

For two cases, copper boiler..... 13 00

For three cases, copper boiler..... 14 00

Pamphlets sent, on application, gratis.

For testimonials see advertisement in *Dental Cosmos*, January number, 1862.

Address, **GEO. E. HAYES,**

**BUFFALO, N. Y.**

 For sale at the Dental Depots.



## **New Self-Clamping Flask**

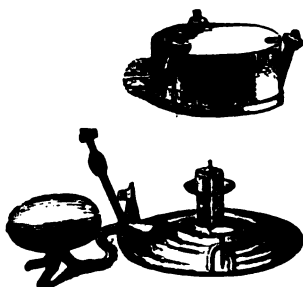
AND

### **AUTOMATIC BURNER**

**FOR HAYE'S VULCANIZERS,**

Needs little attention, and puts itself out at the right time.

For sale as above.



**A. JONES,**  
**No. 724 BROADWAY, N. Y.,**

**WHILE THANKING THE**  
**DENTAL PROFESSION**

For the very liberal patronage they have extended to him for the last twenty-five years, begs leave to say, that he still continues his business as usual at the above number, where may be found

**All Articles in the Dental Line,**

Of his own, and other manufacturers, of the most

**SUPERIOR QUALITY,**

**AND**

**At the Most Favorable Prices.**

All orders from abroad will be punctually and thoroughly attended to.

**RUBENCAME & STOCKTON,**  
MANUFACTURERS OF  
**PORCELAIN TEETH.**

**No. 825 Arch Street,  
PHILADELPHIA, PA.**

Would respectfully inform their DENTAL FRIENDS, and the PROFESSION generally, that they have

**REMOVED**

to their new place of business (number as above,) where, with

**ENLARGED STOCK AND INCREASED FACILITIES,**

They will continue to MANUFACTURE and SUPPLY all articles requisite, for both the OPERATIVE and MECHANICAL Departments.

Desiring to EXCEL in every branch of their business, they respectfully ask the CO-OPERATION of Dentists everywhere, assuring them that CRITICISMS, SUGGESTIONS AND IMPROVEMENTS will always be welcomed, and treated with careful consideration.

They would especially call attention to their

**NEW AND IMPROVED  
PINLESS VULCANITE TEETH,**

(See annexed Drawing of Sections.)



[SECURED.]

These teeth can be mounted *with more ease and speed, more firmly and with less risk,* than any other now made for the Vulcanite base. They combine, when properly set up, GREAT SYMMETRY OF FORM, with COMPLETENESS OF FINISH.

Thanking their friends for the very liberal patronage extended to them in the past, they pledge themselves to do all in their power, by promptness, energy and careful attention to orders, to merit a continuance of their favor in the future.

**RUBENCAME & STOCKTON,**  
No. 825 Arch Street, Philadelphia, Pa.

## TESTIMONIALS.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—Having used your Teeth in my practice for the past four years, and finding them *superior to all others, in beauty, natural appearance and durability*, I hereby add my humble testimonial in their favor. Respectfully,  
Lewistown, Pa.

S. BELFORD.

Having used RUBENBACH & STOCKTON's Teeth for several years past, I can safely recommend them to the profession.

Bloomington, Ill.

E. STEVENS.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—Having used your Teeth in my practice for several years, I can conscientiously recommend them as being *equal, if not superior*, to any now made in the City of Philadelphia, or elsewhere.

Lambertville N. J.

J. HAYHURST.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—Having used your Teeth, I can with pleasure recommend them as a *superior article*.

Philadelphia.

J. M. GARRETSON.

The undersigned having used Teeth manufactured by RUBENBACH & STOCKTON, and that they have given *entire satisfaction* to all patients furnished with the same.

Philadelphia.

ISAAC GRIFFITH.

Messrs. RUBENBACH & STOCKTON:—Gents.—I have used your make of Teeth for several years, and they have given *general satisfaction* to my patients. I would recommend them to the Dentists generally.

Burlington, Iowa.

H. BAILEY.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—I have used the Teeth of your manufacture for two years past, and believe them to be *superior to all others*, they give *perfect satisfaction*.

Georgetown, Del.

GEORGE SNOW.

Messrs. RUBENBACH & STOCKTON:—Gents.—For the last two years I have been using your Teeth, and can safely say that I have found them *all to be as you have represented: giving natural expression, both in style and shade, and bearing admirably the severe test they are subjected to in soldering. In a word, they stand the fire, and look well in the mouth.*

Cochranville, Pa.

ROBT. L. McCLELLAN.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—I have been using Teeth manufactured by you for some time past, and thus far they have given *entire satisfaction*. Yours, truly,  
Bridgeton, N. J.

JOSEPH C. KIRBY.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—Having used your Teeth in my practice for the past two years, and finding them *superior to all others in beauty, natural appearance and unequalled endurance under the blow-pipe*, I hereby cheerfully add my humble testimonial in their favor.

Somers' Point, N. J.

J. HAND.

Having for the last three years used the Teeth manufactured by RUBENBACH & STOCKTON, I can speak in the *highest terms* of their strength, beauty and adaptability; their appearance in the mouth is *natural and life-like*.

Alexandria, Pa.

J. R. HEWITT.

Messrs. RUBENBACH & STOCKTON:—I have used your improved styles of Artificial Teeth, and find them in *every respect great and substantial*, and take pleasure in recommending them to the profession as *worthy of trial*. Yours, truly,  
Philadelphia.

H. S. DEPUTY.

Messrs. RUBENBACH & STOCKTON:—Having used for the last five years, with *entire satisfaction*, your make of Artificial Teeth, I cheerfully recommend them to the profession, and believe they *combine all the qualities required* by the Dentist.

Millville, N. J.

J. S. SIMMERMAN.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—Having used your make of Teeth for the last seven or eight years, I can say that they are *equal to any now made, and inferior to none*.

Philadelphia.

Yours, truly,

G. L. NAGLE.

Messrs. RUBENBACH & STOCKTON:—Dear Sirs—Having used your Teeth ever since they have been in the market, it takes no strain of the imagination to recommend them. They, like the manufacturers, are quite good looking, producing in the most gruff countenance a smile of approbation. *They stand fire and hammering; in fact, none more desirable can be had anywhere.*

Bellfonte, Pa.

Very truly,

JNO. D. WINGATE.

This is to certify, that I have used RUBENBACH & STOCKTON's Teeth for the last two years, and can recommend them to the profession as a *good article*.

Philadelphia.

J. E. HENDRICKSON.

Messrs. RUBENBACH & STOCKTON:—Sirs—Having used your Teeth for some time, I can truthfully say that they are *as good as any I have ever used* and can recommend them to the Dental profession.

Butler, Pa.

S. R. DIEFFENBACHER.

I have used RUBENBACH & STOCKTON's Artificial Teeth for a sufficient time to test their strength and adaptability; they give *entire satisfaction* to myself and customers, are *much admired*, particularly by the Ladies, for their *beauty and natural appearance* in the mouth. I do earnestly recommend them to the Dental profession as a *decidedly superior article*.

Waynesburg, Pa.

SAMUEL McCLEES.

Messrs. RUBENBACH & STOCKTON:—Gentlemen—About eight years since, I bought the first Teeth offered for sale by Mr RUBENBACH. After proper trial, and finding in them *every requisite* of the profession, I have continued their exclusive use to the present time, and with *decided satisfaction* to myself and patients.

Respectfully,

Philadelphia.

O. S. CORFIELD.

Having inserted a great number of Teeth manufactured by RUBENBACH & STOCKTON, it gives me pleasure to recommend them to all Dentists for their *unsurpassed natural and life-like appearance*, being satisfied that they will *stand the action of fire as well, if not better, than any I have ever used* manufactured by others.

Kennett Square, Pa.

ALBEN WAY.



# DENTAL BOOKS,

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**LINDSAY & BLAKISTON,**  
PHILADELPHIA.

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## **Harris's Principles and Practice of Dental Surgery.**

The Eighth Revised and Enlarged Edition, with 250 Illustrations, *will be ready in August.* Price, \$5.00.

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Their Natural History and Structure, Treatment, &c. One Volume, with 250 Illustrations. Price, \$3.00.

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With Illustrations, preparing.

10.

A Complete Descriptive and Priced Catalogue of

## **MEDICAL, DENTAL AND SCIENTIFIC BOOKS**

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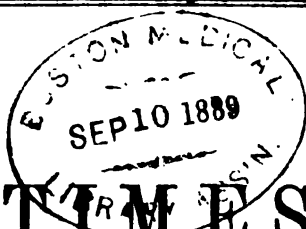
**LINDSAY & BLAKISTON, Publishers,**  
25 South Sixth Street, above Chestnut, Philadelphia.

VOL. II.

JULY, 1864.

NO. 1.

THE  
DENTAL TIMES,



A

QUARTERLY JOURNAL

OF

DENTAL SCIENCE.

EDITED AND PUBLISHED BY

THE FACULTY

OF THE

Pennsylvania College of Dental Surgery.

PHILADELPHIA.

PRICE \$1.00 A YEAR, IN ADVANCE.

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## TO THE PROFESSION.

In issuing the "DENTAL TIMES," we desire to make it of interest to the mass of practitioners. To this end we earnestly solicit from our professional friends, communications on any branch of our specialty. To those who hesitate because their limited time incapacitates them for writing long or elaborate articles, we would say, give us the facts and the method, and we will lay them before our readers so that all will understand and many be instructed.

Persons desiring to become subscribers, can do so by remitting the price of subscription, *one dollar per annum*, with name and address, to Dr. C. N. Peirce, 501 North Seventh street, Philadelphia.

As we desire to keep a corrected list of the dentists in the United States, our friends and subscribers will please notify us when changing their location.

# DEMONSTRATORS' REPORT.

ALL OPERATIONS IN THE CLINICS OF THIS INSTITUTION ARE PERFORMED  
GRATUITOUSLY FOR THE BENEFIT OF THE POOR ONLY.

SESSION OF 1863-'64.

## OPERATIVE DEPARTMENT.

Number of Patients visiting the Clinic,.....	2203
Number for whom the following operations were performed,.....	1687
Gold Fillings,.....	607
Tin do .....	690
Temporary Fillings,.....	13
Amalgam do .....	6
Treatment and Filling Pulp Cavities,.....	201
Superficial Caries Removed,.....	16
Removal of Salivary Calculi, .....	86
Treatment of Periostritis,.....	37
Do Alveolar Abscess,.....	24
Do Inflammation of the Gums,.....	6
Do Partial Necrosis,.....	16
Do Diseased Antrum,.....	2
Do Irregularities,.....	16
Do Necrosis of Superior Maxilla,.....	1
Extraction of Teeth and Roots, .....	2112
Total,.....	2828

JAMES TRUMAN, Demonstrator.

## MECHANICAL DEPARTMENT.

*125 Patients were supplied with the following Artificial Dentures :*

Whole Sets of Teeth, .....	21
Full Upper Sets, .....	42
Full Lower Sets, .....	3
Full Upper Set, Blocks,.....	1
Do Continuous Gum Sets,.....	3
Partial Upper Sets, .....	60
Do Lower Sets,.....	8
Obturator,* .....	3
Teeth Mounted on Metal Plates,.....	517
Do Hard Rubber Base,.....	1180
Whole Number of Gum Teeth,.....	671
Do Plain Teeth,.....	976
Do Teeth Mounted,.....	1647

EDWARD N. BAILEY, A. M., Demonstrator.

\* These were made for soldiers having lost their teeth and adjacent bones from gunshot wounds

# MATRICULANTS.

SESSION 1863-'64.

R. H. SHOEMAKER,.....	Philadelphia.	FEDERICO COMAS,.....	Cuba.
ALEX. O'CALLAGHAN,.....	Cuba.	MANUEL TRUJILLO,.....	"
JOHN HINES,.....	Philadelphia.	H. O. BOOKWELL,.....	New York.
CHARLES BUCKLEY, Jr.,.....	"	W. T. SHANNON,.....	New Jersey.
THOMAS ROBSON, Jr.,.....	"	J. G. CAMP,.....	Pennsylvania.
WILLIAM A. NEWLAND,.....	"	J. W. VANOSTEN,.....	Philadelphia.
A. EMORY STREET,.....	New Jersey.	J. B. R. WRIGGINS,.....	New Jersey.
GEO. J. UNDERWOOD,.....	New York.	S. G. PERRY,.....	New York.
JONAS M. KERN,.....	Pennsylvania.	C. A. MILBANK,.....	"
J. A. WOODWARD,.....	Philadelphia.	G. W. CALDWELL,.....	Philadelphia.
I. S. FOGG, D. D. S.,.....	"	JOHN N. CROUSE,.....	Illinois.
EDWIN O. BAXTER,.....	Maine.	P. PRETERRE, M. D.,.....	New York.
J. W. RHONE,.....	Pennsylvania.	S. O. RICHARDSON,.....	Illinois.
A. S. REBER,.....	"	J. B. SNOW,.....	Connecticut.
E. L. PARRAMORE,.....	Virginia.	J. D. WHITE, Jr.,.....	Philadelphia.
HORACE ENOS,.....	Philadelphia.	GEORGE CLARK,.....	Vermont.
WM. H. PAULLIN,.....	"	O. McGRATH,.....	Philadelphia.
J. O. A. JOHNSON,.....	New Jersey.	EDW. LEFAIVRE,.....	Canada.
JOHN N. FARRAR,.....	Massachusetts.	THOS. E. OSMUN, M. D.,.....	Philadelphia.
SIMEON H. GUILFORD,.....	Pennsylvania.	N. B. WELDON, D. D. S.,.....	Connecticut.
ABRAM PRATT,.....	"	HOWARD BASSETT,.....	Philadelphia.
SIMON FRAU,.....	Cuba.	U. B. KIRK,.....	"
HENRY COWIE,.....	Michigan.		

## GRADUATES, 1863-'64.

R. H. SHOEMAKER,.....	Pennsylvania,.....	Alveolar Abscess.
ALEX. O'CALLAGHAN,.....	Cuba,.....	Dental Caries and its Treatment.
GEO. J. UNDERWOOD,.....	New York,.....	Orthodontia.
EDWIN O. BAXTER,.....	Maine,.....	Dental Periostitis.
ABRAM S. REBER,.....	Pennsylvania,.....	The Relations of the Teeth to each other, and the Importance of these Relations.
HENRY COWIE,.....	Michigan,.....	Diseased Pulps and their Treatment.
FEDERICO COMAS,.....	Cuba,.....	Mechanical Dentistry.
MANUEL TRUJILLO,.....	".....	Caries.
W. T. SHANNON,.....	New Jersey,.....	Exposed Pulps.
J. G. CAMP,.....	Pennsylvania,.....	Neuralgia.
J. W. VANOSTEN,.....	".....	Dental Caries.
G. W. CALDWELL,.....	".....	The Arsenical Paste.
S. O. RICHARDSON,.....	Illinois,.....	Why Superior Teeth Decay in greater proportion than Inferior.
J. B. SNOW,.....	Connecticut,.....	Cheap Mechanical Dentistry.
GEORGE CLARK,.....	Vermont,.....	Dental Caries.
EDWARD LEFAIVRE,.....	Canada,.....	Dentistry in Canada.
THOS. E. OSMUN, M. D.,.....	Pennsylvania,.....	Inflammation.

## BLOCK TEETH AND VULCANITE.

I would respectfully inform the DENTAL PROFESSION that my Laboratory has been REMOVED TO 100 NORTH TENTH STREET, where, after having made considerable improvements in my style of carving and enamels, with assistants also, I am now enabled to execute all orders with promptness and despatch.

Dentists wishing to try Vulcanite Base, can have a few cases made at a reduced price.

**WM R HALL,**

100 North Tenth Street, Philadelphia.

# DR. B. WOOD'S PLASTIC METALLIC FILLING.

EMBRACED IN LETTERS PATENT GRANTED MARCH 20, 1860.

## PATENT FOR THE IMPROVEMENT ALLOWED.

This material possesses advantages which commend it above every other but gold, for filling Teeth, and can be employed where gold cannot.

To suit different cases, three Nos. are prepared. No. 3 is mostly preferred for general use; No. 2 is less plastic, but works handsomely, and is much used; No. 1 is harder but brittle.

For particulars in regard to the material, manner of using it, &c., see DR. B. WOOD'S DENTAL CIRCULAR FOR MAY, 1864. .

Purchasers can have until the 1st of November, 1864, to perfect their licenses—until which time the material may be used for trial, in territory not disposed of, without a license; after that date, regular licenses will be required.

Price \$2 an ingot of 3-4 oz. weight. Postage 6 cents. Every ingot or piece sold is *stamped with the name of the Patentee and the date of the Patent.*

Individual Right of Use in office practice, full term,.....	\$25 00
“ “ “ and Manufacture for one's own use,....	50 00

Exclusive Right according to Territory and population.

Licenses can be had for limited periods, and the amount subsequently applied on the full term. Attention is particularly requested to the proposition made in the *Circular*.

Those intending to obtain licenses, would do well to apply at once, as proposals will now be received for State, County and Town Rights.

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In sets of 8 and 12, at \$2.50 and \$3.75 respectively. For a plainer and cheaper style, \$2 to \$3. Postage 24 to 36 cents.

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Albany, New York.

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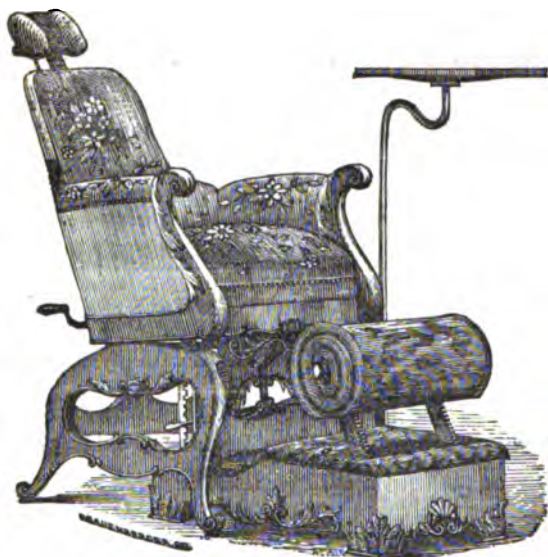
## DR. WOOD'S DENTAL CIRCULAR.

The May number (of which 3000 copies were issued) contains 32 pages, printed in type equal to 40 or 50 pages ordinary journal print. A copy can be had upon application, if before the edition is exhausted.

It is proposed to postpone the issue of the next number until the first of January. Meanwhile correspondence from the profession is respectfully invited.

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**Patented September 4, 1860.**



*This Dental Operating Chair is fast coming into universal use. It is the most convenient, the most durable, and the cheapest Chair in use. For complete description and list of prices, send for catalogue to*

**R. W. ARCHER, Rochester, N. Y.**  
**Sold at all the principal Dental Depots in this country.**

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**MANUFACTURERS OF AND DEALERS IN**

**EVERY DESCRIPTION OF**  
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**Importers of and Wholesale and Retail Dealers in**

**PLATINA PLATE AND WIRE.**

# TO DENTISTS.

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THE CHEAPEST DENTAL DEPOT IN THE CITY

FOR THE

**Latest Improved Teeth,**

OF ALL KINDS,

FORCEPS, PLUGGERS, SCALERS, EXCAVATORS, BURRS,  
CHAIRS, SPITTOONS, LATHES,

Together with a General Assortment of all kinds of

**DENTAL INSTRUMENTS, MATERIALS, &C.**

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**No. 22 North Eighth St., Philadelphia.**

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SUCCESSORS TO

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AND

**DENTISTS' MATERIALS.**

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**NO. 520 ARCH STREET,**

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**PHILADELPHIA.**

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**Philadelphia.**

# HORATIO G. KERN,

MANUFACTURER OF

## SURGICAL & DENTAL INSTRUMENTS, FILES, &C.

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The subscriber would again remind the profession that he still continues to manufacture all kinds of INSTRUMENTS, DENTAL FILES, &C.

From the flattering testimonials he has received, (of which a few are appended,) of the superior quality of his Instruments and Files, he feels confidence in his ability to produce an article fully equal to any made.

Assiduous attention to the details of the business, (with an experience of thirty years,) has enabled him to make many improvements in the *adaptation* to the specific purpose; and, as the success of an operation depends, in some degree, on the adaptation of the instruments to the particular character of the operation, it needs no argument to convince those wishing to procure instruments, of the importance of purchasing the manufacture of those of long and well established reputation. Any orders tendered him will be promptly attended to. Illustrated catalogues will be furnished on application.

HORATIO G. KERN,

No. 25 North Sixth Street, Philadelphia.

---

### TESTIMONIALS.

501 NORTH SEVENTH STREET, Philadelphia, June 8th, 1863.

H. G. KERN—*Dear Sir*—The excavators which you handed me some days since I have had in constant use, and take great pleasure in stating that I believe them to be a superior article, both in their ability to retain a sharp cutting edge, and withstand the force essential to the operation.

Yours, &c.

C. N. PEIRCE, D. D. S.

---

MR. H. G. KERN—*Dear Sir*—The excavators recently manufactured by you have been used with the utmost satisfaction. I can give them an unqualified recommendation. Yours, respectfully,

June 26th, 1863.

GEO. T. BARKER, D. D. S.

---

MR. H. G. KERN—*Dear Sir*—The last excavators obtained from you are of a very superior quality. I can recommend them as being equal to any I have ever used.

T. L. BUCKINGHAM, D. D. S.

June 25th, 1863.

# ROBERTS' OS-ARTIFICIEL

A substitute for AMALGAM in filling badly decayed teeth; and used for resetting PIVOT TEETH in badly decayed roots; also for filling over SENSITIVE DENTINE to destroy sensibility, and as a non-conductor of heat, and for many other DENTAL PURPOSES.

For sale by all dealers in *Dental Materials* and by the undersigned.

One fourth ounce packages, with directions, sent by mail free of postage, on receipt of \$1.

**C. H. ROBERTS, M. D.,**

POUGHKEEPSIE, N. Y.

## HAYES'

HIGH PRESSURE

## VULCANIZING OVEN.

ALSO,

### New Vulcanizing Boiler.

Steam Joint secured by means of a Screw Collar and Set Screws. *No Bolts—no Nuts—no Friction on the Rubber Packing.*

These machines Vulcanize in 40 minutes at 320°; make the best quality of work; consume but one fluid ounce of alcohol, and produce no smell of sulphur in the rooms.

### PRICES:

All complete, with furniture:—

For one case, copper oven.....	\$11 00
For two cases, copper oven.....	12 00
For two cases, copper boiler.....	18 00
For three cases, copper boiler.....	14 00

Pamphlets sent, on application, gratis.

For testimonials see advertisement in *Dental Cosmos*, January number, 1882.

Address, **GEO. E. HAYES,**  
BUFFALO, N. Y.

☞ For sale at the Dental Depots.



## New Self-Clamping Flask

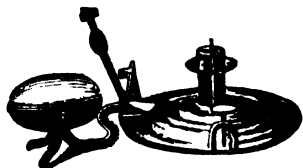
AND

### AUTOMATIC BURNER

FOR HAYE'S VULCANIZERS,

Needs little attention, and puts itself out at the right time.

For sale as above.



**A. JONES,**

**No. 724 BROADWAY, N. Y.,**

**WHILE THANKING THE**

**DENTAL PROFESSION**

For the very liberal patronage they have extended to him for the last twenty-five years, begs leave to say, that he still continues his business as usual at the above number, where may be found

**All Articles in the Dental Line,**

Of his own, and other manufacturers, of the most

**SUPERIOR QUALITY,**

**AND**

**At the Most Favorable Prices.**

All orders from abroad will be punctually and thoroughly attended to.

JNO. R. RUBENCAME,  
THOS. H. STOCKTON, } *General Partners.*

JOHN R. McCURDY,  
*Special Partner.*

# RUBENCAME & STOCKTON, DENTAL DEPOT, No. 825 Arch Street, PHILADELPHIA, PA.

We desire to inform our customers and the profession generally:

*First.* That we have removed to 825 Arch Street, by which removal we secure increased facilities and abundant room, in the manufacturing as well as the sale department.

*Second.* That Mr. JOHN R. McCURDY, formerly of the firm of Jones, White & McCurdy, by his association with us as Special Partner, places us in possession of ample means to enlarge our business to any required extent.

We propose, therefore, to keep constantly on hand articles of every description, and of qualities to suit all, embracing Gold and Tin Foil, Gold and Silver Plate, Wire, Solder and Springs, and a full assortment of Porcelain Teeth for Plate and Vulcanite work, with and without Gum; also,

## THE IMPROVED PINLESS VULCANITE TEETH, (TERRELL'S PATENT,) MANUFACTURED ONLY BY US,



Together with every thing required by the Dentist, both in the operative and mechanical departments.

All orders by Mail, Express or otherwise, will receive our prompt and careful attention—everything warranted as represented.

While thanking the profession for the liberal patronage heretofore extended to us, we respectfully solicit a continuance of the same, believing that we shall be fully able to meet all demands made upon us.

Very respectfully,

**RUBENCAME & STOCKTON.**

P. S. The undersigned having connected himself with Messrs. RUBENCAME & STOCKTON, as a Special Partner, in the manufacture of Porcelain Teeth, Dental Material, etc., is desirous of renewing the business intercourse with the Dental Profession, which ill-health compelled him to suspend five years since.

He pledges himself that nothing shall be wanting on his part to make these renewed relations as pleasant and as satisfactory as those heretofore maintained.

Respectfully,

**JOHN R. McCURDY.**

## TESTIMONIALS.

[From the "Dental Times," April, 1864.]

**VULCANITE TEETH.**—We desire to call attention to the new kind of Teeth for Vulcanite Base, manufactured by RUBENCAM & STOCKTON: The improvement consists in the method of fastening without the use of platina rivets, and appears to us to combine many advantages not to be obtained in Teeth of any other description, we have ever seen or used.

There can be no possible danger of exposing rivet heads or ends in finishing, or fear of the teeth drawing away from their rivets, (as in ordinary pin teeth,) on the contrary, we believe that no more durable or simple fastening can be desired than these afford, presenting at the same time, so complete and accurate a finish, with so much less risk and labor in mounting.

Below we give a cut, showing the heel surface of some sections, and also an end view, the rubber forcing its way into the openings, and over the edges of the gum, inside and out, affords a perfectly solid foundation, and in fact becomes, as it were, a part of the tooth itself.

We believe they are good, and recommend them to the profession generally. G. T. B.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—Having used your Teeth in my practice for the past four years, and finding them *superior to all others, in beauty, natural appearance and durability*, I hereby add my humble testimonial in their favor. Respectfully,

Lewistown, Pa.

S. BELFORD.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—Having used your Teeth in my practice for several years, I can conscientiously recommend them as being *equal, if not superior*, to any now made in the City of Philadelphia, or elsewhere.

Lambertville N. J.

J. HAYHURST.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—Having used your Teeth, I can with pleasure recommend them as a *superior article*, Philadelphia.

J. M. GARRETSON.

The undersigned having used Teeth manufactured by RUBENCAM & STOCKTON, and that they have given *entire satisfaction* to all patients furnished with the same. Philadelphia.

ISAAC GRIFFITH.

**MESSES. RUBENCAM & STOCKTON.**—Gents.—I have used your make of Teeth for several years, and they have given *general satisfaction* to my patients. I would recommend them to the Dentists generally.

Burlington, Iowa.

H. BAILEY.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—I have used the Teeth of your manufacture for two years past, and believe them to be *superior to all others*, they give *perfect satisfaction*. Georgetown, Del.

GEORGE SNOW.

**MESSES. RUBENCAM & STOCKTON.**—Gents.—For the last two years I have been using your Teeth, and can safely say that I have found them *all to be as you have represented: giving natural expression, both in style and shade, and bearing admirably the severe test they are subjected to in soldering. In a word, they stand the fire, and look well in the mouth.*

Cochranville, Pa.

ROBT. L. MCCLELLAN.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—I have been using Teeth manufactured by you for some time past, and thus far they have given *entire satisfaction*. Yours, truly,

Bridgeton, N. J.

JOSEPH C. KIRBY.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—Having used your Teeth in my practice for the past two years, and finding them *superior to all others in beauty, natural appearance and unequalled endurance* under the blow-pipe, I hereby cheerfully add my humble testimonial in their favor. Somers' Point, N. J.

J. HAND.

Having for the last three years used the Teeth manufactured by RUBENCAM & STOCKTON, I can speak in the *highest terms* of their *strength, beauty and adaptability*; their appearance in the mouth is *natural and life-like*.

Alexandria, Pa.

J. R. HEWITT.

**MESSES. RUBENCAM & STOCKTON.**—Having used for the last five years, with *entire satisfaction*, your make of Artificial Teeth, I cheerfully recommend them to the profession, and believe they combine *all the qualities required* by the Dentist.

Millsville, N. J.

J. S. SIMMERMAN.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—Having used your make of Teeth for the last seven or eight years, I can say that they are *equal to any now made, and inferior to none*. Philadelphia.

Yours, truly,

G. L. NAGLE.

**MESSES. RUBENCAM & STOCKTON.**—Dear Sirs—Having used your Teeth ever since they have been in the market, it takes no strain of the imagination to recommend them. They, like the manufacturers, are quite good looking, producing in the most gruff countenance a smile of approbation. *They stand fire and hammering; in fact, none more desirable can be had anywhere.*

Bellefonte, Pa.

Very truly,

JNO. D. WINGATE.

I have used RUBENCAM & STOCKTON's Artificial Teeth for a sufficient time to test their *strength and adaptability*; they give *entire satisfaction* to myself and customers, are *much admired*, particularly by the Ladies, for their *beauty and natural appearance* in the mouth. I do earnestly recommend them to the Dental profession as a *decidedly superior article*.

Waynesburg, Pa.

SAMUEL MCCLEES.

**MESSES. RUBENCAM & STOCKTON.**—Gentlemen—About eight years since, I bought the first Teeth offered for sale by Mr. RUBENCAM. After proper trial, and finding in them *every requisite* of the profession, I have continued their exclusive use to the present time, and with *decided satisfaction* to myself and patients. Respectfully,

Philadelphia.

C. S. CORFIELD.

Having inserted a great number of Teeth manufactured by RUBENCAM & STOCKTON, it gives me pleasure to recommend them to all Dentists for their *unsurpassed natural and life-like appearance*, being satisfied that they will *stand the action of fire as well, if not better, than any I have ever used* manufactured by others.

Kennett Square, Pa.

ALBEN WAY.

# W. A. DUFF & CO.

MANUFACTURERS OF

## PORCELAIN TEETH

No. 516 ARCH STREET,  
PHILADELPHIA.

We invite the attention of Dentists and Dealers to our assortment of ARTIFICIAL TEETH, believing them to equal any offered to the profession.

We are prepared to furnish every variety of PLAIN and GUM TEETH for GOLD and SILVER PLATE, and RUBBER OR VULCANITE WORK, including Block and Single Teeth, for Vulcanite, with

## DOUBLE-HEADED PINS.

These Pins have really two distinct and well-formed heads, one in the tooth, preventing the possibility of their being drawn out, and one for insertion in the Rubber. Our upper central blocks have each five pins, and the lower central and side blocks each four; together, Fifty-one Double-headed Pins in each full set, our machinery enabling us to finish them in this improved manner.

We would also call the special attention of the profession to our

## PINLESS TEETH.

for Vulcanite Work. For strength and peculiar adaptation to the purpose intended, we believe them to be unsurpassed.

DENTAL INSTRUMENTS, LATHES, VULCANIZERS,

ARCHER'S IMPROVED DENTAL CHAIRS,

FOOTSTOOLS, SPITTOONS, TRAYS, &c., &c., including the various articles used by the profession.

W. A. DUFF,  
DR. J. J. GRIFFITH, D. D. S.  
J. W. WATT.

W. A. DUFF & CO.,  
516 Arch Street, Phila.

VOL. II.

OCTOBER, 1864.

NO. 2.

THE  
DENTAL TIMES,

PROPERTY

OF

The New England  
DENTAL SOCIETY.

Presented by

A

PERLY JOURNAL

OF

DENTAL SCIENCE.

JUN 20 1891

EDITED AND PUBLISHED BY

THE FACULTY

OF THE

Pennsylvania College of Dental Surgery.

PHILADELPHIA.

PRICE \$1.00 A YEAR, IN ADVANCE.



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## TO THE PROFESSION.

In issuing the "DENTAL TIMES," we desire to make it of interest to the mass of practitioners. To this end we earnestly solicit from our professional friends, communications on any branch of our specialty. To those who hesitate because their limited time incapacitates them for writing long or elaborate articles, we would say, give us the facts and the method, and we will lay them before our readers so that all will understand and many be instructed.

Persons desiring to become subscribers, can do so by remitting the price of subscription, *one dollar per annum*, with name and address, to Dr. C. N. Peirce, 501 North Seventh street, Philadelphia.

As we desire to keep a corrected list of the dentists in the United States, our friends and subscribers will please notify us when changing their location.

# DEMONSTRATORS' REPORT.

ALL OPERATIONS IN THE CLINICS OF THIS INSTITUTION ARE PERFORMED  
GRATUITOUSLY FOR THE BENEFIT OF THE POOR ONLY.

SESSION OF 1863-'64.

## OPERATIVE DEPARTMENT.

Number of Patients visiting the Clinic,.....	2302
Number for whom the following operations were performed,.....	1687
Gold Fillings,.....	607
Tin do .....	690
Temporary Fillings,.....	13
Amalgam do .....	6
Treatment and Filling Pulp Cavities,.....	201
Superficial Caries Removed,.....	16
Removal of Salivary Calculi,.....	86
Treatment of Peristitis,.....	37
Do Alveolar Abscess,.....	24
Do Inflammation of the Gums,.....	6
Do Partial Necrosis,.....	16
Do Diseased Antrum,.....	2
Do Irregularities,.....	16
Do Necrosis of Superior Maxilla,.....	1
Extraction of Teeth and Roots,.....	2112
Total,.....	3628

JAMES TRUMAN, Demonstrator.

## MECHANICAL DEPARTMENT.

126 Patients were supplied with the following Artificial Dentures :

Whole Sets of Teeth,.....	21
Full Upper Sets,.....	42
Full Lower Sets,.....	3
Full Upper Set, Blocks,.....	1
Do Continuous Gum Sets,.....	3
Partial Upper Sets,.....	60
Do Lower Sets,.....	3
Obtainers,*.....	3
Teeth Mounted on Metal Plates,.....	517
Do Hard Rubber Base,.....	1130
Whole Number of Gum Teeth,.....	671
Do Plain Teeth,.....	976
Do Teeth Mounted,.....	1647

EDWARD N. BAILEY, A. M., Demonstrator.

\* These were made for soldiers having lost their teeth and adjacent bones from gunshot wounds

# MATRICULANTS.

SESSION 1863-'64.

R. H. SHOEMAKER,.....	Philadelphia.	FEDERICO COMAS,.....	Cuba.
ALEX. O'CALLAGHAN,.....	Cuba.	MANUEL TRUJILLO,.....	"
JOHN HINES,.....	Philadelphia.	H. C. ROCKWELL,.....	New York.
CHARLES BUCKLEY, Jr.,.....	"	W. T. SHANNON,.....	New Jersey.
THOMAS ROBSON, Jr.,.....	"	J. G. CAMP,.....	Pennsylvania
WILLIAM A. NEWLAND,.....	"	J. W. VANOSTEN,.....	Philadelphia.
A. EMORY STREET,.....	New Jersey.	J. B. E. WRIGGINS,.....	New Jersey.
GEO. J. UNDERWOOD,.....	New York.	S. G. PERRY,.....	New York.
JONAS M. KERN,.....	Pennsylvania.	O. A. MILBANK,.....	"
J. A. WOODWARD,.....	Philadelphia.	G. W. CALDWELL,.....	Philadelphia
I. S. FOGG, D. D. S.,.....	"	JOHN N. CROUSE,.....	Illinois.
EDWIN C. BAXTER,.....	Maine.	P. PRETERRE, M. D.,.....	New York.
J. W. RHONE,.....	Pennsylvania.	S. C. RICHARDSON,.....	Illinois.
A. S. REBER,.....	"	J. B. SNOW,.....	Connecticut.
E. L. PARRAMORE,.....	Virginia.	J. D. WHITE, Jr.,.....	Philadelphia.
MORACE ENOS,.....	Philadelphia.	GEORGE CLARK,.....	Vermont.
WM. H. PAULLIN,.....	"	C. McGRATH,.....	Philadelphia.
J. O. A. JOHNSON,.....	New Jersey.	EDW. LEFAIVRE,.....	Canada.
JOHN N. FARRAR,.....	Massachusetts.	THOS. E. OSMUN, M. D.,.....	Philadelphia
SIMON H. GUILFORD,.....	Pennsylvania.	N. B. WELDON, D. D. S.,.....	Connecticut.
ABRAM PRATT,.....	"	HOWARD BASSETT,.....	Philadelphia.
SIMON FRAU,.....	Cuba.	U. B. KIRK,.....	"
HENRY COWIE,.....	Michigan.		

## GRADUATES, 1863-'64.

R. H. SHOEMAKER,.....	Pennsylvania,	Alveolar Abscess.
ALEX. O'CALLAGHAN,.....	Cuba,	Dental Caries and its Treatment.
GEO. J. UNDERWOOD,.....	New York,	Orthodontia.
EDWIN C. BAXTER,.....	Maine,	Dental Periostitis.
ABRAM S. REBER,.....	Pennsylvania,	The Relations of the Teeth to each other, and the Importance of these Relations.
HENRY COWIE,.....	Michigan,	Diseased Pulpes and their Treatment.
FEDERICO COMAS,.....	Cuba,	Mechanical Dentistry.
MANUEL TRUJILLO,.....	"	Caries.
W. T. SHANNON,.....	New Jersey,	Exposed Pulpes.
J. G. CAMP,.....	Pennsylvania,	Neuralgia.
J. W. VANOSTEN,.....	"	Dental Caries.
G. W. CALDWELL,.....	"	The Arsenical Paste.
S. O. RICHARDSON,.....	Illinois,	Why Superior Teeth Decay in greater proportion than Inferior.
J. B. SNOW,.....	Connecticut,	Cheap Mechanical Dentistry.
GEORGE CLARK,.....	Vermont,	Dental Caries.
EDWARD LEFAIVRE,.....	Canada,	Dentistry in Canada.
THOS. E. OSMUN, M. D.,.....	Pennsylvania,	Inflammation.

## BLOCK TEETH AND VULCANITE

I would respectfully inform the DENTAL PROFESSION that my Laboratory has been REMOVED TO 100 NORTH TENTH STREET, where, after having made considerable improvements in my style of carving and enamels, with assistants also, I am now enabled to execute all orders with promptness and despatch.

Dentists wishing to try Vulcanite Base, can have a few cases made at a reduced price.

**WM R HALL,**

100 North Tenth Street, Philadelphia.

# DR. B. WOOD'S PLASTIC METALLIC FILLING.

(PROTECTED BY LETTERS PATENT.)

This material possesses advantages which commend it above every other but gold, for filling Teeth, and it can be employed where gold cannot.

For particulars in regard to its qualities, the manner of using it, instruments employed, &c., apply for DR. WOOD'S DENTAL CIRCULAR.

Purchasers can have until the 1st of November, 1864, to perfect their licenses—until which time the material may be used for trial, in territory not disposed of, without a license; after that date, regular licenses will be required.

ALL LICENSES to use the Material issue from September 20th, 1864.

TERMS.—For five years from that date, \$8; for ten years, \$15; for seventeen years, (full term,) \$25. Licenses for limited periods, apply towards the extension.

GRANTS to use the Material for trial, not exceeding one year, \$2. These secure the holders the refusal of a license before the expiration of the year, as against applicants for territorial rights, and will be accepted in payment towards a license at any time; they may be taken out monthly or oftener, and so gradually secure a full license within the year. They must be obtained *upon every purchase* for trial.

PRICE OF MATERIAL.—To licensees, \$2 an ingot of  $\frac{1}{2}$  oz. weight. To non-licensees, \$4 an ingot, with a grant to use it for trial not exceeding one year. Postage 6 cents.

PLUGGERS FOR USING THE FILLING, in sets of 8 and 12, plain steel handles, at \$2.50 and \$3.75, respectively. Postage 24 to 36 cents.

Attention is directed to the "offer to applicants for licenses" made in the "*Dental Circular*" for May, 1864, page 32.

Those intending to obtain licenses, would do well to apply at once, as proposals will now be received for State, County and Town Rights.

Address,

B. WOOD, M. D., Dentist,

Albany, New York.

## DR. B. WOOD'S INSULATED PLUGGERS, FOR USING THE PLASTIC METALLIC FILLING.

PATENT APPLIED FOR.

In sets of 8 and 12, with silver or other metallic points and bulbs, at \$6 to \$20 per set, according to style and material. For particulars, apply as above.

The Dental Circular and Examiner for January, 1865,

Will be issued in a few weeks. A copy sent gratuitously on application.

Albany, N. Y., Oct. 1, 1864.

# **R. W. ARCHER'S IMPROVED DENTAL CHAIR.**

**Patented September 4, 1869.**



*This Dental Operating Chair is fast coming into universal use. It is the most convenient, the most durable, and the cheapest Chair in use. For complete description and list of prices, send for catalogue to*

**R. W. ARCHER, Rochester, N. Y.**  
**Sold at all the principal Dental Depots in this country.**

---

**SUTTON & RAYNOR,**  
**No. 748 Broadway, New York,**

**MANUFACTURERS OF AND DEALERS IN**

**EVERY DESCRIPTION OF  
DENTISTS' MATERIALS.**

**ALSO,**

**Importers of and Wholesale and Retail Dealers in  
PLATINA PLATE AND WIRE.**

# TO DENTISTS.

---

THE CHEAPEST DENTAL DEPOT IN THE CITY

FOR THE

**Latest Improved Teeth,**

OF ALL KINDS,

FORCEPS, PLUGGERS, SCALERS, EXCAVATORS, BURRS,  
CHAIRS, SPITTOONS, LATHES,

Together with a General Assortment of all kinds of

**DENTAL INSTRUMENTS, MATERIALS, &C.**

WHOLESALE AND RETAIL, AT

**JOHN KLEIN'S**

**No. 22 North Eighth St., Philadelphia.**

N. B.—One price, and all goods warranted as represented. Cash orders promptly filled.

---

**NEALL, McCURDY & NEALL,**

SUCCESSORS TO

**SAMUEL W. NEALL,**

**MANUFACTURERS OF PORCELAIN TEETH**

AND

**DENTISTS' MATERIALS.**

---

**DENTAL DEPOT,**

**534 Arch St., south-east corner of Sixth,**

**PHILADELPHIA, PENNA.**

**ORUM & ARMSTRONG,**  
**NO. 520 ARCH STREET,**  
**PHILADELPHIA,**

**MANUFACTURERS OF THE**

**Most Improved Gum Sections and Plain Teeth,**  
**FOR THE VULCANITE BASE.**

**ALSO,.**

**GUM & PLAIN TEETH FOR PLATE WORK,**  
**With all other Articles used in Dentistry.**

---

**CHARLES ABBEY & SONS,**  
**MANUFACTURERS OF**  
**DENTISTS' FINE GOLD AND TIN FOIL,**  
**NOS. 228 & 230 PEAR STREET,**  
**PHILADELPHIA.**

The attention of Dentists is invited to our **FINE GOLD FOIL**, which is prepared under our constant personal supervision. Our Nos. are 4, 5, 6, 8 and 10.

We are also manufacturing an **ADHESIVE FINE GOLD FOIL**, Nos. 4, 5 and 6.

**ALL** our Gold Foil is manufactured from **ABSOLUTELY PURE GOLD**, prepared expressly for the purpose, with great care, by ourselves.

**DENTISTS' REFINED TIN FOIL CONSTANTLY ON HAND.**

Address

**CHARLES ABBEY & SONS,**

**Philadelphia.**

# HORATIO G. KERN,

MANUFACTURER OF

## SURGICAL & DENTAL INSTRUMENTS, FILES, &C.

The subscriber would again remind the profession that he still continues to manufacture all kinds of INSTRUMENTS, DENTAL FILES, &C.

From the flattering testimonials he has received, (of which a few are appended,) of the superior quality of his Instruments and Files, he feels confidence in his ability to produce an article fully equal to any made.

Assiduous attention to the details of the business, (with an experience of thirty years,) has enabled him to make many improvements in the *adaptation* to the specific purpose; and, as the success of an operation depends, in some degree, on the adaptation of the instruments to the particular character of the operation, it needs no argument to convince those wishing to procure instruments, of the importance of purchasing the manufacture of those of long and well established reputation. Any orders tendered him will be promptly attended to. Illustrated catalogues will be furnished on application.

HORATIO G. KERN,

No. 25 North Sixth Street, Philadelphia.

---

### TESTIMONIALS.

501 NORTH SEVENTH STREET, *Philadelphia*, June 8th, 1863.

H. G. KERN—*Dear Sir*—The excavators which you handed me some days since I have had in constant use, and take great pleasure in stating that I believe them to be a superior article, both in their ability to retain a sharp cutting edge, and withstand the force essential to the operation.

Yours, &c.

C. N. PEIRCE, D. D. S.

---

MR. H. G. KERN—*Dear Sir*—The excavators recently manufactured by you have been used with the utmost satisfaction. I can give them an unqualified recommendation. Yours, respectfully,

June 26th, 1863.

GEO. T. BARKER, D. D. S.

---

MR. H. G. KERN—*Dear Sir*—The last excavators obtained from you are of a very superior quality. I can recommend them as being equal to any I have ever used.

June 25h, 1863.

T. L. BUCKINGHAM, D. D. S.



# ROBERTS' OS-ARTIFICIAL

A substitute for AMALGAM in filling badly decayed teeth; and used for resetting PIVOT TEETH in badly decayed roots; also for filling over SENSITIVE DENTINE to destroy sensibility, and as a non-conductor of heat, and for many other DENTAL PURPOSES.

For sale by all dealers in *Dental Materials* and by the undersigned.

One fourth ounce packages, with directions, sent by mail free of postage, on receipt of \$1.

**C. H. ROBERTS, M. D.,**

**POUGHKEEPSIE, N. Y.**

## HAYES'

HIGH PRESSURE

## VULCANIZING OVEN.

ALSO,

### New Vulcanizing Boiler.

Steam Joint secured by means of a Screw Collar and Set Screws. *No Bolts—no Nuts—no Friction on the Rubber Packing.*

These machines Vulcanize in 40 minutes at 320°; make the best quality of work; consume but one fluid ounce of alcohol, and produce no smell of sulphur in the rooms.

#### PRICES:

All complete, with furniture:—

For one case, copper oven.....	\$11 00
For two cases, copper oven.....	12 00
For two cases, copper boiler.....	13 00
For three cases, copper boiler.....	14 00

Pamphlets sent, on application, gratis.

For testimonials see advertisement in *Dental Cosmos*, January number, 1862.

Address, **GEO. E. HAYES,**  
**BUFFALO, N. Y.**

☞ For sale at the Dental Depots.



## New Self-Clamping Flask

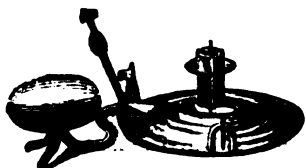
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Needs little attention, and puts itself out at the right time.

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*First.* That we have removed to 825 Arch Street, by which removal we secure increased facilities and abundant room, in the manufacturing as well as the sale department.

*Second.* That Mr. JOHN R. McCURDY, formerly of the firm of Jones, White & McCurdy, by his association with us as Special Partner, places us in possession of ample means to enlarge our business to any required extent.

We propose, therefore, to keep constantly on hand articles of every description, and of qualities to suit all, embracing Gold and Tin Foil, Gold and Silver Plate, Wire, Solder and Springs, and a full assortment of Porcelain Teeth for Plate and Vulcanite work, with and without Gum; also,

## THE IMPROVED PINLESS VULCANITE TEETH, (TERRELL'S PATENT,) MANUFACTURED ONLY BY US,



Together with every thing required by the Dentist, both in the operative and mechanical departments.

All orders by Mail, Express or otherwise, will receive our prompt and careful attention—everything warranted as represented.

While thanking the profession for the liberal patronage heretofore extended to us, we respectfully solicit a continuance of the same, believing that we shall be fully able to meet all demands made upon us.

Very respectfully,

**RUBENCAME & STOCKTON.**

P. S. The undersigned having connected himself with Messrs. RUBENCAME & STOCKTON, as a Special Partner, in the manufacture of Porcelain Teeth, Dental Material, etc., is desirous of renewing the business intercourse with the Dental Profession, which ill-health compelled him to suspend five years since.

He pledges himself that nothing shall be wanting on his part to make these renewed relations as pleasant and as satisfactory as those heretofore maintained.

Respectfully,

**JOHN R. McCURDY.**

## TESTIMONIALS.

[From the "Dental Times," April, 1864]

**VULCANITE TEETH.**—We desire to call attention to the new kind of Teeth for Vulcanite Base, manufactured by RUBENCAME & STOCKTON. The improvement consists in the method of fastening without the use of platina rivets, and appears to us to combine many advantages not to be obtained in Teeth of any other description we have ever seen or used.

There can be no possible danger of exposing rivet heads or ends in finishing, or fear of the teeth drawing away from their rivets, (as in ordinary pin teeth,) on the contrary, we believe that no more durable or simple fastening can be desired than these afford, presenting at the same time, so complete and accurate a finish, with so much less risk and labor in mounting.

Below we give a cut, showing the heel surface of some sections, and also an end view, the rubber forcing its way into the openings, and over the edges of the gum, inside and out, affords a perfectly solid foundation, and in fact becomes, as it were, a part of the tooth itself.

We believe they are good, and recommend them to the profession generally.

G. T. S.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—Having used your Teeth in my practice for the past four years, and finding them *superior to all others*, in *beauty, natural appearance and durability*, I hereby add my humble testimonial in their favor. Respectfully,

S. BELFORD.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—Having used your Teeth in my practice for several years, I can conscientiously recommend them as being *equal, if not superior*, to any now made in the City of Philadelphia, or elsewhere.

Lambertville N. J.

J. HAYHURST.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—Having used your Teeth, I can with pleasure recommend them as a *superior article*.

Philadelphia.

J. M. GARRETSON.

The undersigned having used Teeth manufactured by RUBENCAME & STOCKTON, find that they have given *entire satisfaction* to all patients furnished with the same.

Philadelphia.

ISAAC GRIFFITH.

**Messrs. RUBENCAME & STOCKTON:**—Gents.—I have used your make of Teeth for several years, and they have given *general satisfaction* to my patients. I would recommend them to the Dentists generally.

Burlington, Iowa.

H. BAILEY.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—I have used the Teeth of your manufacture for two years past, and believe them to be *superior to all others*, they give *perfect satisfaction*.

Georgetown, Del.

GEORGE SNOW.

**Messrs. RUBENCAME & STOCKTON:**—Gents.—For the last two years I have been using your Teeth, and can safely say that I have found them *all to be as you have represented: giving natural expression, both in style and shade, and bearing admirably* the severe test they are subjected to in soldering. In a word, *they stand the fire, and look well in the mouth*.

Cochranville, Pa.

ROBT. L. McCLELLAN.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—I have been using Teeth manufactured by you for some time past, and thus far they have given *entire satisfaction*.

Bridgeton, N. J.

Yours, truly,  
JOSEPH O. KIRBY.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—Having used your Teeth in my practice for the past two years, and finding them *superior to all others in beauty, natural appearance and unequalled endurance* under the blow-pipe, I hereby cheerfully add my humble testimonial in their favor.

Somers' Point, N. J.

J. HAND.

Having for the last three years used the Teeth manufactured by RUBENCAME & STOCKTON, I can speak in the *highest terms* of their *strength, beauty and adaptability*; their appearance in the mouth is *natural and life-like*.

Alexandria, Pa.

J. R. HEWITT.

**Messrs. RUBENCAME & STOCKTON:**—Having used for the last five years, with *entire satisfaction*, your make of Artificial Teeth, I cheerfully recommend them to the profession, and believe they combine *all the qualities required* by the Dentist.

Millsville, N. J.

J. S. SIMMERMAN.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—Having used your make of Teeth for the last seven or eight years, I can say that they are *equal to any now made, and inferior to none*.

Philadelphia.

Yours, truly,

G. L. NAGLE.

**Messrs. RUBENCAME & STOCKTON:**—Dear Sirs—Having used your Teeth ever since they have been in the market, it takes no strain of the imagination to recommend them. They, like the manufacturers, are quite good looking, producing in the most gruff countenance a smile of approbation. *They stand fire and hammering*; in fact, *none more desirable can be had anywhere*.

Belleville, Pa.

Very truly,

JNO. D. WINGATE.

I have used RUBENCAME & STOCKTON's Artificial Teeth for a sufficient time to test their *strength and adaptability*; they give *entire satisfaction* to myself and customers, are *much admired*, particularly by the Ladies, for their *beauty and natural appearance* in the mouth. I do earnestly recommend them to the Dental profession as a *decidedly superior article*.

Waynesburg, Pa.

SAMUEL McCLEES.

**Messrs. RUBENCAME & STOCKTON:**—Gentlemen—About eight years since, I bought the first Teeth offered for sale by Mr RUBENCAME. After proper trial, and finding in them *every requisite* of the profession, I have continued their exclusive use to the present time, and with *decided satisfaction* to myself and patients.

Philadelphia.

Respectfully,

C. S. CORFIELD.

Having inserted a great number of Teeth manufactured by RUBENCAME & STOCKTON, it gives me pleasure to recommend them to all Dentists for their *unsurpassed natural and life-like appearance*, being satisfied that they will *stand the action of fire as well, if not better, than any I have ever used* manufactured by others.

Kennett Square, Pa.

ALDEN WAY.

# W. A. DUFF & CO.

MANUFACTURERS OF

## PORCELAIN TEETH

No. 516 ARCH STREET,  
PHILADELPHIA.

We invite the attention of Dentists and Dealers to our assortment of ARTIFICIAL TEETH, believing them to equal any offered to the profession.

We are prepared to furnish every variety of PLAIN and GUM TEETH for GOLD and SILVER PLATE, and RUBBER OR VULCANITE WORK, including Block and Single Teeth, for Vulcanite, with

### DOUBLE-HEADED PINS.

These Pins have really two distinct and well-formed heads, one in the tooth, preventing the possibility of their being drawn out, and one for insertion in the Rubber. Our upper central blocks have each five pins, and the lower central and side blocks each four; together, Fifty-one Double headed Pins in each full set, our machinery enabling us to finish them in this improved manner.

We would also call the special attention of the profession to our

### PINLESS TEETH.

for Vulcanite Work. For strength and peculiar adaptation to the purpose intended, we believe them to be unsurpassed.

DENTAL INSTRUMENTS, LATHES, VULCANIZERS,  
ARCHER'S IMPROVED DENTAL CHAIRS,

FOOTSTOOLS, SPITTOONS, TRAYS, &c., &c., including the various articles used by the profession.

W. A. DUFF,  
DR. J. J. GRIFFITH, D. D. S.  
J. W. WATT.

W. A. DUFF & CO.,  
516 Arch Street, Phila.

*Harry*  
VOL. II.

JANUARY, 1865.

NO. 3.

THE  
DENTAL TIMES,  
A  
QUARTERLY JOURNAL  
OF  
DENTAL SCIENCE.

EDITED AND PUBLISHED BY  
THE FACULTY  
OF THE  
*Pennsylvania College of Dental Surgery.*

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PHILADELPHIA.

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As we desire to keep a corrected list of the dentists in the United States, our friends and subscribers will please notify us when changing their location.

# DEMONSTRATORS' REPORT.

ALL OPERATIONS IN THE CLINICS OF THIS INSTITUTION ARE PERFORMED  
GRATUITOUSLY FOR THE BENEFIT OF THE POOR ONLY.

SESSION OF 1863-'64.

## OPERATIVE DEPARTMENT.

Number of Patients visiting the Clinic,.....	2202
Number for whom the following operations were performed,.....	1687
Gold Fillings,.....	607
Tin do .....	600
Temporary Fillings,.....	13
Amalgam do .....	6
Treatment and Filling Pulp Cavities,.....	201
Superficial Caries Removed,.....	15
Removal of Salivary Calculi,.....	55
Treatment of Periostitis,.....	37
Do Alveolar Abscess,.....	24
Do Inflammation of the Gums,.....	5
Do Partial Necrosis,.....	15
Do Diseased Antrum,.....	2
Do Irregularities,.....	15
Do Necrosis of Superior Maxilla,.....	1
Extraction of Teeth and Roots, .....	2112
Total,.....	3828

JAMES TRUMAN, Demonstrator.

## MECHANICAL DEPARTMENT.

125 Patients were supplied with the following Artificial Dentures :

Whole Sets of Teeth, .....	21
Full Upper Sets, .....	42
Full Lower Sets, .....	3
Full Upper Set, Blocks,.....	1
Do Continuous Gum Sets,.....	3
Partial Upper Sets, .....	60
Do Lower Sets,.....	8
Obturator*, .....	3
Teeth Mounted on Metal Plates,.....	517
Do Hard Rubber Base,.....	1130
Whole Number of Gum Teeth,.....	671
Do Plain Teeth,.....	976
Do Teeth Mounted,.....	1647

EDWARD N. BAILEY, A. M., Demonstrator.

\* These were made for soldiers having lost their teeth and adjacent bones from gunshot wounds.



# MATRICULANTS.

SESSION 1863-'64.

R. H. SHOEMAKER,.....	Philadelphia.	FEDERICO COMAS,.....	Cuba.
ALEX. O'CALLAGHAN,.....	Cuba.	MANUEL TRUJILLO,.....	"
JOHN HINES,.....	Philadelphia.	H. C. ROCKWELL,.....	New York.
CHARLES BUCKLEY, Jr.,.....	"	W. T. SHANNON,.....	New Jersey.
THOMAS ROBSON, Jr.,.....	"	J. G. CAMP,.....	Pennsylvania
WILLIAM A. NEWLAND,.....	"	J. W. VANOSTEN,.....	Philadelphia.
A. EMORY STREET,.....	New Jersey.	J. B. R. WRIGGINS,.....	New Jersey.
GEO. J. UNDERWOOD,.....	New York.	S. G. PERRY,.....	New York.
JONAS M. KERN,.....	Pennsylvania.	C. A. MILBANK,.....	"
J. A. WOODWARD,.....	Philadelphia.	G. W. CALDWELL,.....	Philadelphia
I. S. FOGG, D. D. S.,.....	"	JOHN N. CROUSE,.....	Illinois.
EDWIN C. BAXTER,.....	Maine.	P. PRETERRE, M. D.,.....	New York.
J. W. RHONE,.....	Pennsylvania.	S. C. RICHARDSON,.....	Illinois.
A. S. REBER,.....	"	J. B. SNOW,.....	Connecticut.
E. L. PARRAMORE,.....	Virginia.	J. D. WHITE, Jr.,.....	Philadelphia.
HORACE ENOS,.....	Philadelphia.	GEORGE CLARK,.....	Vermont.
WM. H. PAULLIN,.....	"	C. McGRATH,.....	Philadelphia
J. O. A. JOHNSON,.....	New Jersey.	EDW. LEFAIVRE,.....	Canada.
JOHN N. FARRAR,.....	Massachusetts.	THOS. E. OSMUN, M. D.,.....	Philadelphia
SIMEON H. GUILFORD,.....	Pennsylvania	N. B. WELDON, D. D. S.,.....	Connecticut.
ABRAM PRATT,.....	"	HOWARD BASSETT,.....	Philadelphia
SIMON FRAU,.....	Cuba.	U. B. KIRK,.....	"
HERNY COWIE,.....	Michigan.		

## GRADUATES, 1863-'64.

R. H. SHOEMAKER,.....	Pennsylvania,.....	Alveolar Abscess.
ALEX. O'CALLAGHAN,.....	Cuba,.....	Dental Caries and its Treatment.
GEO. J. UNDERWOOD,.....	New York,.....	Orthodontia.
EDWIN C. BAXTER,.....	Maine,.....	Dental Periostritis.
ABRAM S. REBER,.....	Pennsylvania,.....	The Relations of the Teeth to each other, and the Importance of these Relations.
HENRY COWIE,.....	Michigan,.....	Diseased Pulpes and their Treatment.
FEDERICO COMAS,.....	Cuba,.....	Mechanical Dentistry.
MANUEL TRUJILLO,.....	"	Caries.
W. T. SHANNON,.....	New Jersey,.....	Exposed Pulpes.
J. G. CAMP,.....	Pennsylvania,.....	Neuralgia.
J. W. VANOSTEN,.....	"	Dental Caries.
G. W. CALDWELL,.....	"	The Arsenical Paste.
S. C. RICHARDSON,.....	Illinois,.....	Why Superior Teeth Decay in greater pro- portion than Inferior.
J. B. SNOW,.....	Connecticut,.....	Cheap Mechanical Dentistry.
GEORGE CLARK,.....	Vermont,.....	Dental Caries.
EDWARD LEFAIVRE,.....	Canada,.....	Dentistry in Canada.
THOS. E. OSMUN, M. D.,.....	Pennsylvania,.....	Inflammation.

# DR. B. WOOD'S PLASTIC METALLIC FILLING.

Patented March 20, 1860, and Sept. 4, 1864.

Manufactured by the Proprietor and Patentee, Albany, New York.

This Material is fully conceded by Dentists skilled in its use, to be superior to any other but gold for filling teeth, while it can be successfully employed in many cases where gold cannot. Where economy is an object, it is undeniably the best filling we have. (For particulars in full, see Dr. Wood's *Dental Circular*, for May, 1864.)

All Licenses to use the Material are issued from this office, Albany, N. Y., and all take date from the date of the new Patent, Sept. 4, 1864. **TERMS:** For 5 years from that date, \$8; for 10 years, \$15; for 17 years, (full term,) \$25. Licenses for limited periods apply towards an extension, and for the full term, towards a Manufacturing License.

Grants under the old patent extend for 14 years from the 20th of March, 1860, and may be applied towards a license under the new patent, for the full term, or for 10 years, upon payment for the residue of the time.

Licenses are not issued for a less term than five years from the 4th of Sept., 1864. But for a fee of \$2 a Right may be had to use the material for trial for a limited period, not to exceed One Year from that date. This will secure the refusal of a License, and can be applied thereon, at any time within the year; but it does not constitute the holder a License, and he must pay the same fee and get a Receipt therefor upon the purchase of every ingot or part of an ingot, until he shall have obtained a regular license. Receipts, endorsed by the Patentee, are furnished to authorized agents for this purpose, each being good for \$2 towards a license, as above. This proposition will be open only for the present year, after which regular Licenses will be required in all cases.

Those who purchased in good faith under the conditions as heretofore advertised, and who wish further trial, or desire to take out their licenses gradually, should at once avail themselves of these ready and easy terms. The time during which the use of the material was allowed without a license, expired, agreeable to public announcement, the first of November, 1864. *The using of it since that date, without right or license, is an infringement on the Patent, and leaves no alternative but prosecution, unless the parties secure their licenses before action is brought.*

THE PLASTIC METALLIC FILLING is formed into thin ingots about 1-20 of an inch in thickness, each weighing  $\frac{1}{4}$  of an ounce, avoird., and stamped with the name of the Patentee and the dates of the patents. In view of the adoption of the license system, the old price has been maintained notwithstanding the greatly advanced rates of everything. But should specie reach above 200 with a prospect of permanency, the price will be advanced in proportion.

**PRESENT PRICE OF MATERIAL**—To Licensees, \$2 an ingot. To non-Licensees, \$4 an ingot, or \$3 for half an ingot, with a Right to Use it for trial not exceeding one year. Postage, 6 cents.

**PLUGGERS FOR USING THE FILLING**, in sets of 8 and 12, steel handles, at \$3 and \$4.50 respectively. Postage 24 and 36 cents. Scrapers for finishing, (set of 3,) at the same rates.

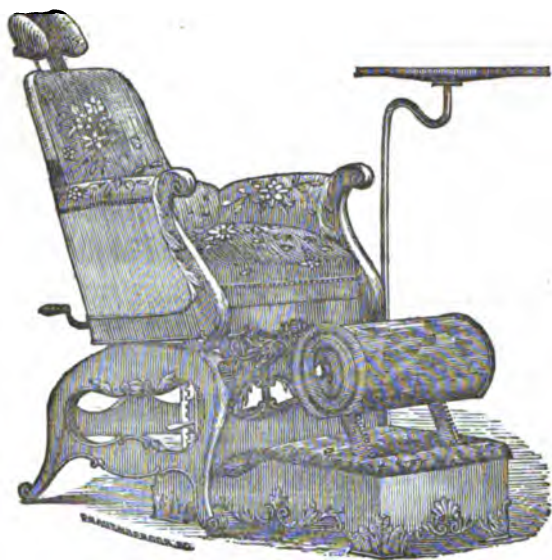
For Licenses, Material, &c., address

**Dr. B. WOOD, Dentist,**  
**Albany, New York.**

N. B.—The Profession are warned against purchasing of unauthorized parties, thus becoming equally liable with them. The names of agents will be duly announced; but any one not provided with Receipts endorsed by the Patentee, or offering to sell material different from the above terms or without the proper patent stamp, may be known as unauthorized. For list of agents, see the *Dental Circular* and *Examiner* for January, 1865.

# **R. W. ARCHER'S** **IMPROVED DENTAL CHAIR.**

**Patented September 4, 1860.**



*This Dental Operating Chair is fast coming into universal use. It is the most convenient, the most durable, and the cheapest Chair in use. For complete description and list of prices, send for catalogue to*

**R. W. ARCHER, Rochester, N. Y.**  
**Sold at all the principal Dental Depots in this country.**

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**SUTTON & RAYNOR,**  
**No. 748 Broadway, New York,**

**MANUFACTURERS OF AND DEALERS IN**

**EVERY DESCRIPTION OF**  
**DENTISTS' MATERIALS.**

**ALSO,**

**Importers of and Wholesale and Retail Dealers in**  
**PLATINA PLATE AND WIRE.**

# TO DENTISTS.

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THE CHEAPEST DENTAL DEPOT IN THE CITY

FOR THE

**Latest Improved Teeth,**

OF ALL KINDS,

FORCEPS, PLUGGERS, SCALERS, EXCAVATORS, BURRS,  
CHAIRS, SPITTOONS, LATHES,

Together with a General Assortment of all kinds of

**DENTAL INSTRUMENTS, MATERIALS, &C.**

WHOLESALE AND RETAIL, AT

**JOHN KLEIN'S**

**No. 22 North Eighth St., Philadelphia.**

N. B.—One price, and all goods warranted as represented. Cash orders promptly filled.

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**NEALL, McCURDY & NEALL,**

SUCCESSORS TO

**SAMUEL W. NEALL,**

**MANUFACTURERS OF PORCELAIN TEETH**

AND

**DENTISTS' MATERIALS.**

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**DENTAL DEPOT,**

**534 Arch St., south-east corner of Sixth,**

**PHILADELPHIA, PENNA.**

**ORUM & ARMSTRONG,**  
**NO. 520 ARCH STREET,**  
**PHILADELPHIA,**

**MANUFACTURERS OF THE**

**Most Improved Gum Sections and Plain Teeth,**  
**FOR THE VULCANITE BASE.**

**ALSO,**

**GUM & PLAIN TEETH FOR PLATE WORK,**  
**With all other Articles used in Dentistry.**

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**CHARLES ABBEY & SONS,**  
**MANUFACTURERS OF**  
**DENTISTS' FINE GOLD AND TIN FOIL,**  
**NOS. 228 & 230 PEAR STREET,**  
**PHILADELPHIA.**

The attention of Dentists is invited to our **FINE GOLD FOIL**, which is prepared under our constant personal supervision. Our Nos. are 4, 5, 6, 8 and 10.

We are also manufacturing an **ADHESIVE FINE GOLD FOIL**, Nos. 4, 5 and 6.

**ALL** our Gold Foil is manufactured from **ABSOLUTELY PURE GOLD**, prepared expressly for the purpose, with great care, by ourselves.

**DENTISTS' REFINED TIN FOIL CONSTANTLY ON HAND.**

Address

**CHARLES ABBEY & SONS,**

**Philadelphia.**

# HORATIO G. KERN,

MANUFACTURER OF

## SURGICAL & DENTAL INSTRUMENTS, FILES, &C.

---

The subscriber would again remind the profession that he still continues to manufacture all kinds of INSTRUMENTS, DENTAL FILES, &C.

From the flattering testimonials he has received, (of which a few are appended,) of the superior quality of his Instruments and Files, he feels confidence in his ability to produce an article fully equal to any made.

Assiduous attention to the details of the business, (with an experience of thirty years,) has enabled him to make many improvements in the *adaptation* to the specific purpose; and, as the success of an operation depends, in some degree, on the adaptation of the instruments to the particular character of the operation, it needs no argument to convince those wishing to procure instruments, of the importance of purchasing the manufacture of those of long and well established reputation. Any orders tendered him will be promptly attended to. Illustrated catalogues will be furnished on application.

HORATIO G. KERN,

No. 25 North Sixth Street, Philadelphia.

---

### TESTIMONIALS.

501 NORTH SEVENTH STREET, *Philadelphia, June 8th, 1863.*

H. G. KERN—*Dear Sir*—The excavators which you handed me some days since I have had in constant use, and take great pleasure in stating that I believe them to be a superior article, both in their ability to retain a sharp cutting edge, and withstand the force essential to the operation.

Yours, &c.

C. N. PEIRCE, D. D. S.

---

MR. H. G. KERN—*Dear Sir*—The excavators recently manufactured by you have been used with the utmost satisfaction. I can give them an unqualified recommendation. Yours, respectfully,

June 26th, 1863.

GEO. T. BARKER, D. D. S.

---

MR. H. G. KERN—*Dear Sir*—The last excavators obtained from you are of a very superior quality. I can recommend them as being equal to any I have ever used.

T. L. BUCKINGHAM, D. D. S.

June 25th, 1863.

# LUTHER'S ADAMANTEAN WHITE-FILLING.

This invaluable preparation is now used by, and meets the approbation of intelligent and experienced Dentists in every State in the Union as being the only Self-hardening filling known that will retain its integrity and metallic color, without turning black and discoloring the teeth, and as being in all respects unequalled as a substitute for Gold, in cases where the latter is inadmissible, on account either of the great extent of the decay, the extreme tenderness of the tooth, the difficulty of access to the cavity, or from motives of economy.

<b>Packages containing 1 oz.,</b>	-	-	-	<b>\$3.00</b>
<b>Do. do. 6 dwts.,</b>	-	-	-	<b>1.00</b>

Sent, post paid, on receipt of money. For Circular enclose return postage. Address

**H. GILES LUTHER, Dentist,**

84 East Twenty-second Street,

NEW YORK.

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## ROBERTS' OS-ARTIFICIAL

A substitute for AMALGAM in filling badly decayed teeth; and used for resetting PIVOT TEETH in badly decayed roots; also for filling over SENSITIVE DENTINE to destroy sensibility, and as a non-conductor of heat, and for many other DENTAL PURPOSES.

For sale by all dealers in *Dental Materials* and by the undersigned.

One-fourth ounce packages, with directions, sent by mail free of postage, on receipt of \$1.

**C. H. ROBERTS, M. D.,**

POUGHKEEPSIE, N. Y.

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## BLOCK TEETH AND VULCANITE

I would respectfully inform the DENTAL PROFESSION that my Laboratory has been REMOVED TO 100 NORTH TENTH STREET, where, after having made considerable improvements in my style of carving and enamels, with assistants also, I am now enabled to execute all orders with promptness and despatch.

Dentists wishing to try Vulcanite Base, can have a few cases made at a reduced price.

**WM. R. HALL,**

100 North Tenth Street, Philadelphia.

**A. JONES,**  
**No. 724 BROADWAY, N. Y.,**

**WHILE THANKING THE**  
**DENTAL PROFESSION**

For the very liberal patronage they have extended to him for the last twenty-five years, begs leave to say, that he still continues his business as usual at the above number, where may be found

**All Articles in the Dental Line,**

Of his own, and other manufacturers, of the most

**SUPERIOR QUALITY,**

**AND**

**At the Most Favorable Prices.**

All orders from abroad will be punctually and thoroughly attended to.



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# DEMONSTRATORS' REPORT.

ALL OPERATIONS IN THE CLINICS OF THIS INSTITUTION ARE PERFORMED  
GRATUITOUSLY FOR THE BENEFIT OF THE POOR ONLY.

SESSION OF 1863-'64.

## OPERATIVE DEPARTMENT.

Number of Patients visiting the Clinic,.....	2202
Number for whom the following operations were performed,.....	1687
Gold Fillings,.....	607
Tin do .....	690
Temporary Fillings,.....	13
Amalgam do .....	6
Treatment and Filling Pulp Cavities,.....	201
Superficial Caries Removed,.....	15
Removal of Salivary Calculi,.....	55
Treatment of Periostritis,.....	37
Do Alveolar Abscess,.....	24
Do Inflammation of the Gums,.....	5
Do Partial Necrosis,.....	15
Do Diseased Antrum,.....	2
Do Irregularities,.....	15
Do Necrosis of Superior Maxilla,.....	1
Extraction of Teeth and Roots, .....	2112
Total,.....	3828

JAMES TRUMAN, Demonstrator.

## MECHANICAL DEPARTMENT.

125 Patients were supplied with the following Artificial Dentures :

Whole Sets of Teeth, .....	21
Full Upper Sets, .....	42
Full Lower Sets, .....	3
Full Upper Set, Blocks,.....	1
Do Continuous Gum Sets,.....	3
Partial Upper Sets, .....	60
Do Lower Sets,.....	8
Obturator, * .....	1
Teeth Mounted on Metal Plates,.....	517
Do Hard Rubber Base,.....	1130
Whole Number of Gum Teeth,.....	671
Do Plain Teeth,.....	970
Do Teeth Mounted,.....	1647

EDWARD N. BAILEY, A. M., Demonstrator.

\* These were made for soldiers having lost their teeth and adjacent bones from gunshot wounds.

# W. A. DUFF & CO.

MANUFACTURERS OF

## PORCELAIN TEETH

No. 516 ARCH STREET,  
PHILADELPHIA.

We invite the attention of Dentists and Dealers to our assortment of ARTIFICIAL TEETH, believing them to equal any offered to the profession.

We are prepared to furnish every variety of PLAIN and GUM TEETH for GOLD and SILVER PLATE, and RUBBER OR VULCANITE WORK, including Block and Single Teeth, for Vulcanite, with

### DOUBLE-HEADED PINS.

These Pins have really two distinct and well-formed heads, one in the tooth, preventing the possibility of their being drawn out, and one for insertion in the Rubber. Our upper central blocks have each five pins, and the lower central and side blocks each four; together, Fifty-one Double-headed Pins in each full set, our machinery enabling us to finish them in this improved manner.

We would also call the special attention of the profession to our

### PINLESS TEETH.

for Vulcanite Work. For strength and peculiar adaptation to the purpose intended, we believe them to be unsurpassed.

DENTAL INSTRUMENTS, LATHES, VULCANIZERS,  
ARCHER'S IMPROVED DENTAL CHAIRS,

FOOTSTOOLS, SPITTOONS, TRAYS, &C., &C., including the various articles used by the profession.

W. A. DUFF,  
DR. J. J. GRIFFITH, D. D. S.

W. A. DUFF & CO.,  
516 Arch Street, Phila.

6.00  
1.35  
4.65

VOL. II.

APRIL, 1865.

NO. 4.

THE  
DENTAL TIMES,  
A  
QUARTERLY JOURNAL  
OF  
DENTAL SCIENCE.

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OF THE

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PHILADELPHIA.

PRICE \$1.00 A YEAR, IN ADVANCE.

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## TO THE PROFESSION.

In issuing the "DENTAL TIMES," we desire to make it of interest to the mass of practitioners. To this end we earnestly solicit from our professional friends, communications on any branch of our specialty. To those who hesitate because their limited time incapacitates them for writing long or elaborate articles, we would say, give us the facts and the method, and we will lay them before our readers so that all will understand and many be instructed.

Persons desiring to become subscribers, can do so by remitting the price of subscription, *one dollar per annum*, with name and address, to Dr. T. L. Buckingham, 243 North Ninth street, Philadelphia.

As we desire to keep a corrected list of the dentists in the United States, our friends and subscribers will please notify us when changing their location.

# DEMONSTRATORS' REPORT.

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GRATUITOUSLY FOR THE BENEFIT OF THE POOR ONLY.

SESSION OF 1864-'65.

## OPERATIVE DEPARTMENT.

Number of Patients visiting the Clinic,.....	2600
Number for whom the following operations were performed,.....	1487
Gold Fillings,.....	627
Tin do .....	606
Wood's Metal,.....	9
Hill's Stopping,.....	14
Amalgam,.....	12
Treatment and Filling Pulp Cavities,.....	176
Superficial Caries Removed,.....	6
Removal of Salivary Calculi, .....	57
Treatment of Periostitis,.....	28
Do Alveolar Abscess,.....	10
Do Inflammation of the Gums,.....	5
Do Partial Necrosis,.....	15
Do Irregularities, .....	10
Pivot Teeth inserted,.....	2
Extraction of Teeth and Roots, .....	2010
Total,.....	3877

JAMES TRUMAN, Demonstrator.

## MECHANICAL DEPARTMENT.

154 Patients were supplied with the following Artificial Dentures :

Whole Sets of Teeth, .....	31
Full Upper Sets, .....	48
Full Lower Sets, .....	2
Full Upper Set, Blocks,.....	1
Partial Upper Sets, .....	76
Do Lower Sets,.....	4
Obturator,* .....	2
Teeth Mounted on Metal Plates,.....	528
Do Hard Rubber Base,.....	1481
Whole Number of Gum Teeth,.....	902
Do Plain Teeth,.....	1107
Do Teeth Mounted,.....	2009

J. M. BARSTOW, Demonstrator.

\* These were made for soldiers having lost their teeth and adjacent bones from gunshot wounds.

# MATRICULANTS.

NINTH ANNUAL SESSION, 1864-'65.

ROBERT JAS. ADAMS,.....	New York.	C. B. McGRATH,.....	Pennsylvania.
BENJAMIN J. BING,.....	Maryland.	FRANCIS MIGNOTTE,.....	Cuba.
SAMUEL A. BEECHER,.....	Missouri.	CHARLES A. MILBANK,.....	New York.
HENRY BLAKENEY,.....	New York.	WM A. NEWLAND, Jr.,.....	Pennsylvania.
HOWARD BASSETT,.....	New Jersey.	P. PRETERRE, M. D.,.....	New York.
JOSE BERTRAM,.....	Cuba.	JAMES PARSONS,.....	Wisconsin.
GASPER A. BETANCOURT,.....	"	ABRAM PRATT,.....	Pennsylvania.
JOHN R. BUCKINGHAM,.....	Pennsylvania.	S. G. PERRY,.....	New York.
EDWIN C. BAXTER, D. D. S.,	Maine.	JARED A. PERKINS,.....	Massachusetts.
J. WESLEY CLEMSON,.....	Pennsylvania.	JAMES R. RONEY,.....	Pennsylvania.
AUGUST CULMAN, M. D.,.....	Bavaria.	THOMAS ROBINSON,.....	Delaware.
P. M. CHRISTIE,.....	Pennsylvania	THOMAS ROBSON, Jr.,.....	Pennsylvania.
FREDERICK K. CROSBY,.....	Connecticut.	H. C. ROCKWELL,.....	New York.
EDWIN T. DARBY,.....	New York.	H. P. ROBERTS,.....	Illinois.
E. S. DAVENPORT,.....	"	H. C. REGISTER,.....	Maryland.
HORACE ENOS,.....	Pennsylvania	A. EMORY STREET,.....	New Jersey.
MICHELE FICHERA,.....	Sicily.	JOHN SHELDON,.....	New York.
SIMON FRAU,.....	Cuba.	O. S. STOCKTON,.....	New Jersey.
JOHN N. FARRAR,.....	Massachusetts.	WILLIAM SMEDLEY,.....	Pennsylvania.
ENOCH S. FOGG,.....	Pennsylvania.	GEORGE B. SANFORD,.....	New York.
JOHN FRASIER,.....	Maryland.	WM. H. SCHOLL,.....	Pennsylvania.
SIMEON H. GUILFORD,.....	Pennsylvania.	WM. H. TRUEMAN,.....	"
JESSE C. GREEN,.....	"	A. P. TOMPKINS,.....	"
CANBY HATHAWAY,.....	"	J. J. VANDERFORD,.....	Maryland.
JAMES O. A. JOHNSON,.....	New Jersey.	CARLOS D&L VILLAR,.....	Cuba.
JONAS Y. KERN,.....	Pennsylvania.	AUGUSTIN DE VARONA,....	"
DANIEL J. LALLY,.....	New York.	J. A. WOODWARD,.....	Pennsylvania.
WM. B. LINEAWEAVER,.....	Pennsylvania.	J. B. B. WRIGGINS,.....	New Jersey
JOHN LYNAM, M. D.,.....	Ireland.		

## GRADUATES, 1864-'65.

GASPER A. BETANCOURT,.....	Cuba,.....	Filling Pulp Cavities and Roots of Teeth.
SAMUEL A. BEECHER,.....	Missouri,.....	Sulphuric Ether.
HOWARD BASSETT,.....	New Jersey,.....	Diseases Incident to First Dentition.
BENJAMIN J. BING,.....	Maryland,.....	Dentistry, a Science.
J. WESLEY CLEMSON,.....	Pennsylvania,.....	Predisposing Causes to Dental Caries.
AUGUST CULMAN, M. D.,.....	Bavaria,.....	Neuralgia of the Trigemimus.
EDWIN T. DARBY,.....	New York,.....	Dentistry, a Profession.
HORACE ENOS,.....	Pennsylvania,.....	Vulcanized Rubber.
SIMON FRAU,.....	Cuba,.....	Ether.
MICHELE FICHERA,.....	Sicily,.....	Filling Teeth.
T. N. FARRAR,.....	Massachusetts,.....	Intermittent and Hysterical Neuralgia.
SIMON GUILFORD,.....	Pennsylvania,.....	Vascularity of Dentine.
JAMES O. A. JOHNSON,.....	New Jersey,.....	Extraction of Teeth.
JOHN LYMAN, M. D.,.....	Ireland,.....	Military Dentistry.
C. A. MILBANK,.....	New York,.....	Diseases Attending First Dentition.
CHAS. B. McGRATH,.....	Pennsylvania,.....	Hysteria.
WM. A. NEWLAND,.....	".....	Fractures of the Teeth.
ABRAM PRATT,.....	".....	Odontology.
S. G. PERRY,.....	New York,.....	Inflammation.
P. PRETERRE, M. D.,.....	".....	Development of Teeth
JARED A. PERKINS,.....	Massachusetts,.....	Cause of Dental Caries.
THOS. ROBINSON,.....	Delaware,.....	Irregularities of the Permanent Teeth.
THOMAS ROBSON, Jr.,.....	Pennsylvania,.....	Rubber.
HEWLETT C. ROCKWELL,.....	New York,.....	Nitrous Oxide.
A. EMORY STREET,.....	New Jersey,.....	Entire Artificial Dentures.
W. H. SCHOLL,.....	Pennsylvania,.....	Indurated Rubber.
GEO. B. SANFORD,.....	New York,.....	Teeth and their Diseases.
J. B. B. WRIGGINS,.....	New Jersey,.....	Caries of the Teeth.
J. A. WOODWARD,.....	Pennsylvania,.....	Treatment of Exposed Dental Pulp.

# **DR. B. WOOD'S PLASTIC METALLIC FILLING.**

Patented March 20, 1860, and Sept. 4, 1864.

Manufactured by the Proprietor and Patentee, Albany, New York.

---

This Material is fully conceded by Dentists skilled in its use, to be superior to any other but gold for filling teeth, while it can be successfully employed in many cases where gold cannot.

All Licenses to use the Material are issued from this office, Albany, N. Y., and all take date from the date of the new patent, Sept. 4, 1864. **TERMS:** For 5 years from that date, \$8; for 10 years, \$15; for 17 years, (full term,) \$25. Licenses for limited periods apply in part payment towards an extension.

Those who desire longer trial prior to procuring a license, can have the right of use until the 4th of September, 1865, upon the conditions advertised in the "*Dental Circular and Examiner*" for January, 1865.

Price of material, in present currency, \$4 an ingot, of  $\frac{1}{2}$  ounce weight, (or \$2 in specie.)

A reduction made upon material after procuring a regular license.

For full particulars in regard to terms, &c., see advertisement in the January number of the *Dental Circular and Examiner*, a copy of which will be sent on application.

**PLUGGERS FOR USING THE FILLING**, in sets of 8 and 12, steel handles, at \$3 and \$4.50, respectively. Postage, 24 and 36 cents. With silver and German silver bulbs and points, from \$6 to \$20 a set, according to style and material.

A patent on these instruments was granted February 28, 1865.

For Licenses, Material, &c., Address

**Dr. B. WOOD, Dentist,  
Albany, New York.**

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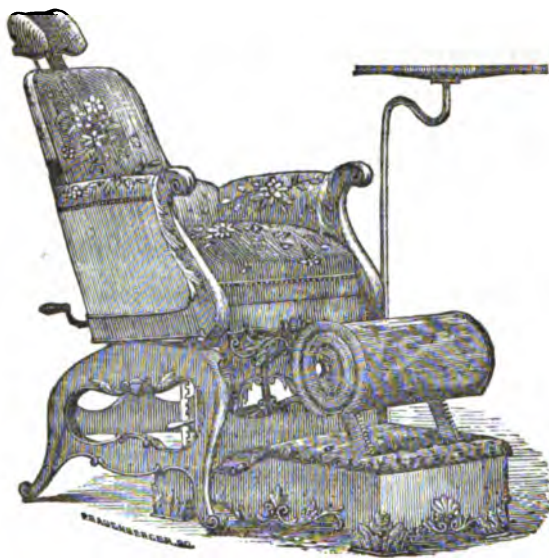
**AT ONE DOLLAR A YEAR, IN ADVANCE.**

The January number will be sent to any one requesting a copy for examination. Address as above.



# **R. W. ARCHER'S** **IMPROVED DENTAL CHAIR.**

**Patented September 4, 1860.**



This Dental Operating Chair is fast coming into universal use. It is the most *convenient*, the most *durable*, and the cheapest Chair in use. For complete description and list of prices, send for catalogue to

R. W. ARCHER, Rochester, N. Y.  
Sold at all the principal Dental Depots in this country.

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MANUFACTURERS OF AND DEALERS IN

EVERY DESCRIPTION OF  
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# TO DENTISTS.

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THE CHEAPEST DENTAL DEPOT IN THE CITY

FOR THE

*Latest Improved Teeth,*

OF ALL KINDS,

FORCEPS, PLUGGERS, SCALERS, EXCAVATORS, BURRS,  
CHAIRS, SPITTOONS, LATHES,

Together with a General Assortment of all kinds of

**DENTAL INSTRUMENTS, MATERIALS, &C.**

WHOLESALE AND RETAIL, AT

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**MANUFACTURERS OF PORCELAIN TEETH**

AND

**DENTISTS' MATERIALS.**

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534 Arch St., south-east corner of Sixth,

PHILADELPHIA, PENNA.

**ORUM & ARMSTRONG,**  
**NO. 520 ARCH STREET,**  
**PHILADELPHIA,**

**MANUFACTURERS OF THE**

**Most Improved Gum Sections and Plain Teeth,**  
**FOR THE VULCANITE BASE.**

**ALSO,**

**GUM & PLAIN TEETH FOR PLATE WORK,**

**With all other Articles used in Dentistry.**

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**CHARLES ABBEY & SONS,**

**MANUFACTURERS OF**

**DENTISTS' FINE GOLD AND TIN FOIL,**  
**NOS. 228 & 230 PEAR STREET,**  
**PHILADELPHIA.**

The attention of Dentists is invited to our **FINE GOLD FOIL**, which is prepared under our constant personal supervision. Our Nos. are 4, 5, 6, 8 and 10.

We are also manufacturing an **ADHESIVE FINE GOLD FOIL**, Nos. 4, 5 and 6.

**ALL** our Gold Foil is manufactured from **ABSOLUTELY PURE GOLD**, prepared expressly for the purpose, with great care, by ourselves.

**DENTISTS' REFINED TIN FOIL CONSTANTLY ON HAND.**

**Address**

**CHARLES ABBEY & SONS,**

**Philadelphia.**

## TESTIMONIALS.

[From the "Dental Times," April, 1864.]

**VULCANITE TEETH.**—We desire to call attention to the new kind of Teeth for Vulcanite Bases manufactured by HIGGINS & STUART. The improvement consists in the method of fastening the new of plating rivets, and appears to be superior to any other description of Teeth of any other description.

## SURGICAL & DENTAL INSTRUMENTS, FILES, &C.

The subscriber would again remind the profession that he still continues to manufacture all kinds of INSTRUMENTS, DENTAL FILES, &C.

From the flattering testimonials he has received, (of which a few are appended,) of the superior quality of his Instruments and Files, he feels confidence in his ability to produce an article fully equal to any made.

Assiduous attention to the details of the business, (with an experience of thirty years,) has enabled him to make many improvements in the *adaptation* to the specific purpose; and, as the success of an operation depends, in some degree, on the adaptation of the instruments to the particular character of the operation, it needs no argument to convince those wishing to procure instruments, of the importance of purchasing the manufacture of those of long and well established reputation. Any orders tendered him will be promptly attended to. Illustrated catalogues will be furnished on application.

HORATIO G. KERN,

No. 25 North Sixth Street, Philadelphia.

---

## TESTIMONIALS.

501 NORTH SEVENTH STREET, Philadelphia, June 8th, 1863.

H. G. KERN—*Dear Sir*—The excavators which you handed me some days since I have had in constant use, and take great pleasure in stating that I believe them to be a superior article, both in their ability to retain a sharp cutting edge, and withstand the force essential to the operation.

Yours, &c.

C. N. PEIRCE, D. D. S.

MR. H. G. KERN—*Dear Sir*—The excavators recently manufactured by you have been used with the utmost satisfaction. I can give them an unqualified recommendation. Yours, respectfully,

June 26th, 1863.

GEO. T. BARKER, D. D. S.

MR. H. G. KERN—*Dear Sir*—The last excavators obtained from you are of a very superior quality. I can recommend them as being equal to any I have ever used.

T. L. BUCKINGHAM, D. D. S.

June 25h, 1863.

## ORUM & ARMSTRONG,

ARCH STREET

This invaluable preparation is now used by a large number of intelligent and experienced Dentists in every State in the Union as being the only Self-hardening filling known that will retain its integrity and metallic color, without turning black and discoloring the teeth, and as being in all respects unequalled as a substitute for Gold, in cases where the latter is inadmissible, on account either of the great extent of the decay, the extreme tenderness of the tooth, the difficulty of access to the cavity, or from motives of economy.

Packages containing 1 oz.,	-	-	-	\$3.00
Do. do. 6 dwts,	-	-	-	1.00

Sent, post paid, on receipt of money. For Circular enclose return postage. Address

**H. GILES LUTHER, Dentist,**

84 East Twenty-second Street,

NEW YORK.

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## ROBERTS' OS-ARTIFICIAL

A substitute for AMALGAM in filling badly decayed teeth; and used for resetting PIVOT TEETH in badly decayed roots; also for filling over SENSITIVE DENTINE to destroy sensibility, and as a non-conductor of heat, and for many other DENTAL PURPOSES.

For sale by all dealers in *Dental Materials* and by the undersigned.

One-fourth ounce packages, with directions, sent by mail free of postage, on receipt of \$1.

**C. H. ROBERTS, M. D.,**

POUGHKEEPSIE, N. Y.

---

## BLOCK TEETH AND VULCANITE.

I would respectfully inform the DENTAL PROFESSION that my Laboratory has been REMOVED TO 100 NORTH TENTH STREET, where, after having made considerable improvements in my style of carving and enamels, with assistants also, I am now enabled to execute all orders with promptness and despatch.

Dentists wishing to try Vulcanite Base, can have a few cases made at a reduced price.

**WM R HALL,**

100 North Tenth Street, Philadelphia.

# TESTIMONIALS.

[From the "Dental Times," April, 1864.]

**VULCANITE TEETH.**—We desire to call attention to the new kind of Teeth for Vulcanite Base, manufactured by RUBENCAKE & STOCKTON. The improvement consists in the method of fastening without the use of platinum rivets, and appears to us to combine many advantages not to be obtained in Teeth of any other description we have ever seen or used.

There can be no possible danger of exposing rivet heads or ends in finishing, or fear of the teeth drawing away from their rivets, (as in ordinary pin teeth,) on the contrary, we believe that no more durable or simple fastening can be desired than these afford, presenting at the same time, so complete and accurate a finish, with so much less risk and labor in mounting.

Below we give a cut, showing the heel surface of some sections, and also an end view, the rubber forcing its way into the openings, and over the edges of the gum, inside and out, affords a perfectly solid foundation, and in fact becomes, as it were, a part of the tooth itself.

We believe they are good, and recommend them to the profession generally. G. T. B.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—Having used your Teeth in my practice for the past four years, and finding them *superior to all others, in beauty, natural appearance and durability*, I hereby add my humble testimonial in their favor. Respectfully,  
Lewistown, Pa. S. BELFORD.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—Having used your Teeth in my practice for several years, I can conscientiously recommend them as being *equal, if not superior*, to any now made in the City of Philadelphia, or elsewhere.

Lambertville N. J.

J. HAYHURST.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—Having used your Teeth, I can with pleasure recommend them as a *superior article*.

Philadelphia.

J. M. GARRETSON.

The undersigned having used Teeth manufactured by RUBENCAKE & STOCKTON, find that they have given *entire satisfaction* to all patients furnished with the same.

Philadelphia

ISAAC GRIFFITH.

**Messrs. RUBENCAKE & STOCKTON:**—Gents.—I have used your make of Teeth for several years, and they have given *general satisfaction* to my patients. I would recommend them to the Dentists generally.

Burlington, Iowa.

H. BAILEY.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—I have used the Teeth of your manufacture for two years past and believe them to be *superior to all others*, they give *perfect satisfaction*.

Georgetown, Del.

GEORGE SNOW.

**Messrs. RUBENCAKE & STOCKTON:**—Gents.—For the last two years I have been using your Teeth, and can safely say that I have found them *all to be as you have represented: giving natural expression, both in style and shade, and bearing admirably* the severe test they are subjected to in soldering. In a word, *they stand the fire, and look well in the mouth*.

Cochranville, Pa.

ROBT L. MCCLELLAN.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—I have been using Teeth manufactured by you for some time past, and thus far they have given *entire satisfaction*.

Bridgeton, N. J.

JOSAPH O KIRBY.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—Having used your Teeth in my practice for the past two years, and finding them *superior to all others in beauty, natural appearance and unequalled endurance* under the blow-pipe, I hereby cheerfully add my humble testimonial in their favor.

Emers' Point, N. J.

J HAND.

Having for the last three years used the Teeth manufactured by RUBENCAKE & STOCKTON I can speak in the *highest terms* of their *strength, beauty and adaptability*; their appearance in the mouth is *natural and life-like*.

Alexandria, Pa.

J R. HEWITT.

**Messrs. RUBENCAKE & STOCKTON:**—Having used for the last five years, with *entire satisfaction*, your make of Artificial Teeth, I cheerfully recommend them to the profession, and believe they *combine all the qualities required* by the Dentist.

Millville, N. J.

J. S. SIMMERMAN.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—Having used your make of Teeth for the last seven or eight years, I can say that they are *equal to any now made, and inferior to none*.

Philadelphia

Yours, truly,

G L. NAGLE.

**Messrs. RUBENCAKE & STOCKTON:**—Dear Sirs—Having used your Teeth ever since they have been in the market, it takes no strain of the imagination to recommend them, they, like the manufacturers, are quite good looking, producing in the most gruff countenance a smile of approbation. *They stand fire and hammering*; in fact, *none more desirable can be had anywhere*.

Bellefonte, Pa.

Very truly,

JNO D WINGATE.

I have used RUBENCAKE & STOCKTON's Artificial Teeth for a sufficient time to test their *strength and adaptability*; they give *entire satisfaction* to myself and customers, are *much admired*, particularly by the Ladies, for their *beauty and natural appearance* in the mouth. I do earnestly recommend them to the Dental profession as a *decidedly superior article*.

Waynesburg, Pa.

SAMUEL MCCLURE.

**Messrs. RUBENCAKE & STOCKTON:**—Gentlemen—About eight years since, I bought the first Teeth offered for sale by Mr. RUBENCAKE. After proper trial, and finding in them *every requisite* of the profession, I have continued their exclusive use to the present time, and with *decided satisfaction* to myself and patients.

Philadelphia.

Respectfully,

C. S. CORFIELD.

Having inserted a great number of Teeth manufactured by RUBENCAKE & STOCKTON, it gives me pleasure to recommend them to all Dentists for their *unsurpassed natural and life-like appearance*, being satisfied that they will *stand the action of fire as well, if not better, than any I have ever used* manufactured by others.

Kennett Square, Pa.

ALBEN WAY.

*H. P. J.*

---

# W. A. DUFF & CO.

MANUFACTURERS OF

## PORCELAIN TEETH

No. 516 ARCH STREET,  
PHILADELPHIA.

---

We invite the attention of Dentists and Dealers to our assortment of ARTIFICIAL TEETH, believing them to equal any offered to the profession.

We are prepared to furnish every variety of PLAIN and GUM TEETH for GOLD and SILVER PLATE, and RUBBER OR VULCANITE WORK, including Block and Single Teeth, for Vulcanite, with

### DOUBLE-HEADED PINS.

These Pins have really two distinct and well-formed heads, one in the tooth, preventing the possibility of their being drawn out, and one for insertion in the Rubber. Our upper central blocks have each five pins, and the lower central and side blocks each four; together, Fifty-one Double-headed Pins in each full set, our machinery enabling us to finish them in this improved manner.

We would also call the special attention of the profession to our

### PINLESS TEETH.

for Vulcanite Work. For strength and peculiar adaptation to the purpose intended, we believe them to be unsurpassed.

DENTAL INSTRUMENTS, LATHES, VULCANIZERS,  
ARCHER'S IMPROVED DENTAL CHAIRS,

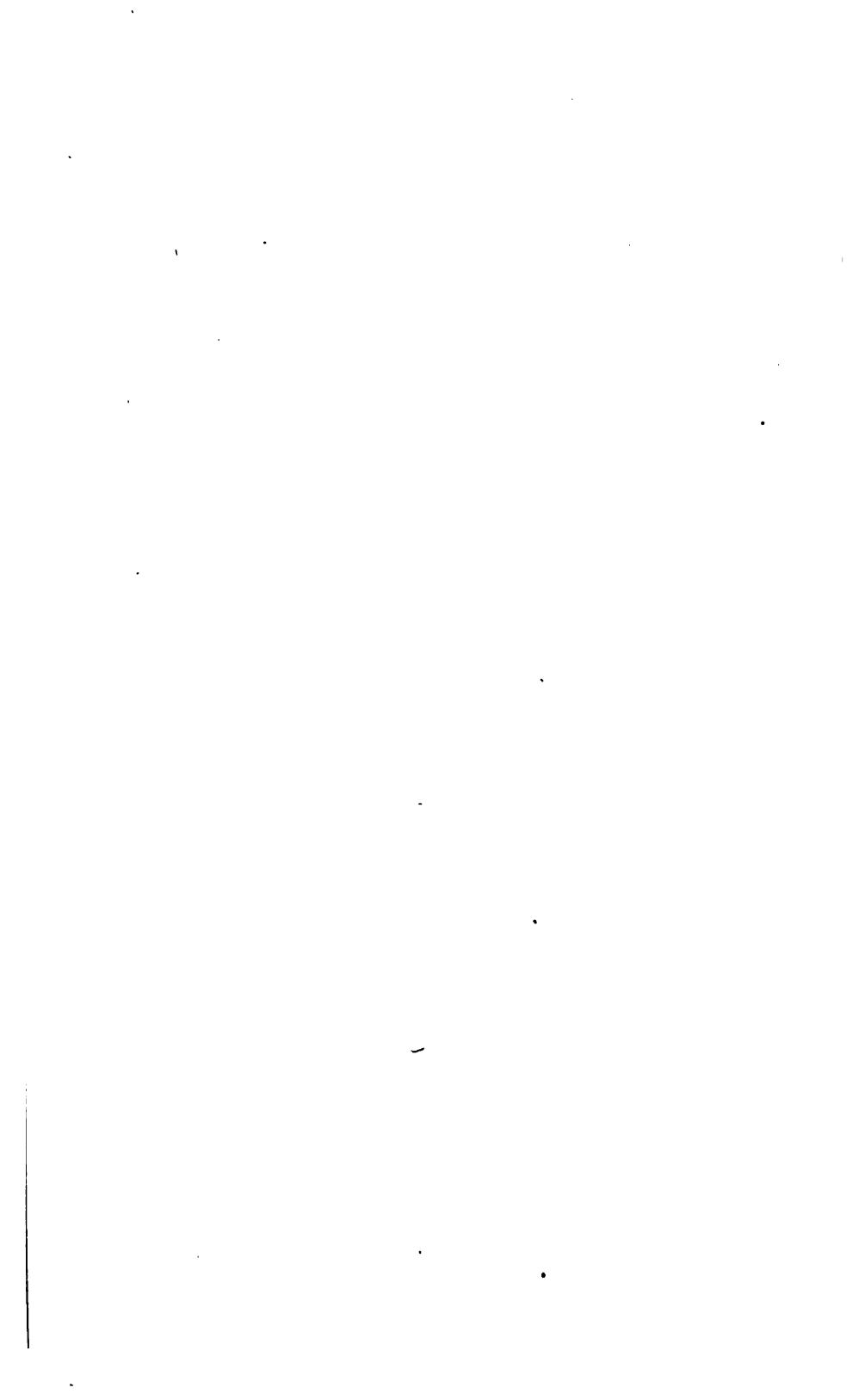
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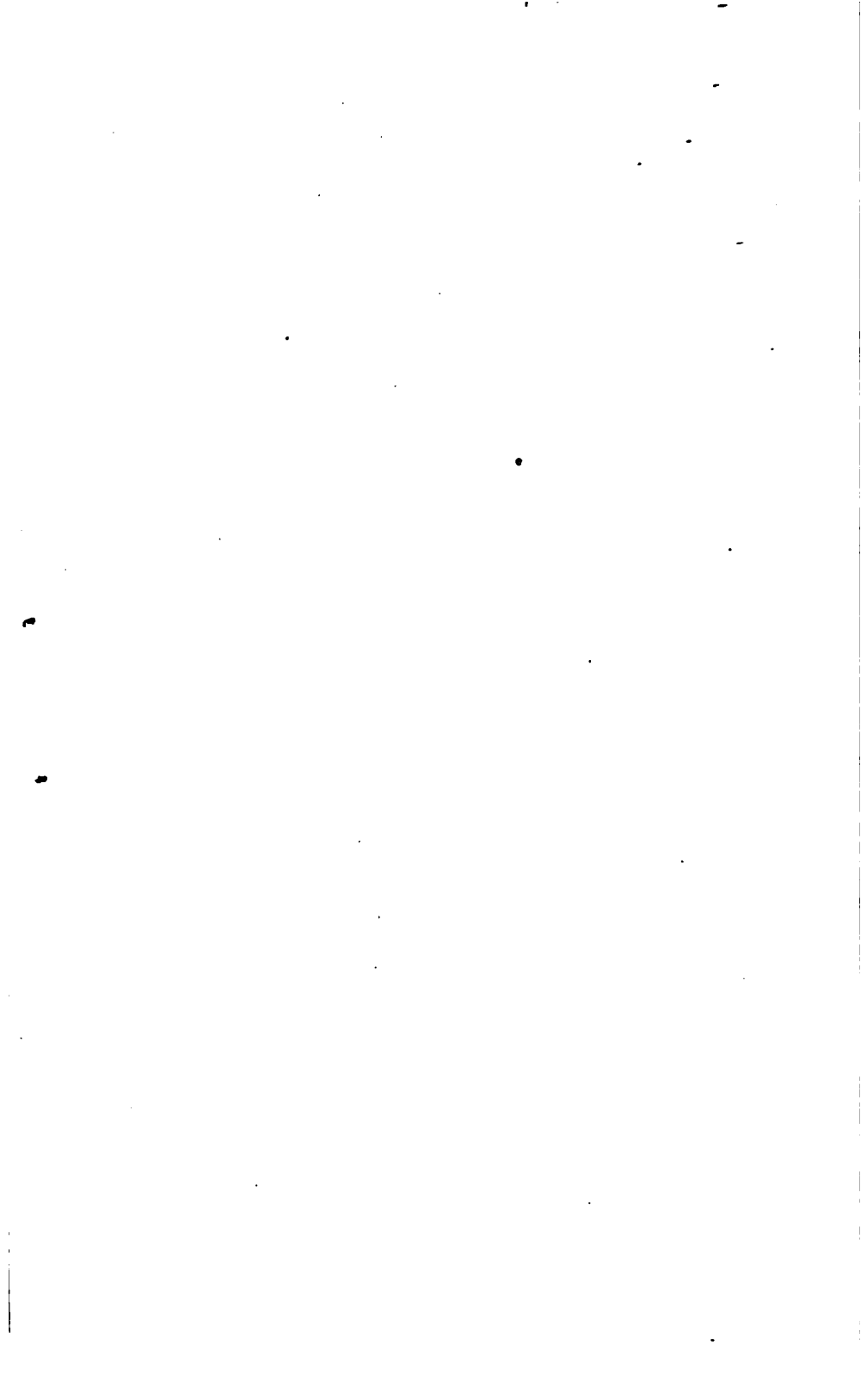
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